MAR 30 1920

MARCH 15, 1920.

WHOLE SERIES, VOL. XLIV. No. 3. THIRD SERIES, VOL. XXXVI.

The THERAPEUTIC GAZETTE

INCORPORATING

MEDICINE AND THE MEDICAL AGE

A Monthly Journal of

Practical Therapeutics

Edited by

H. A. Hare, M.D.

Professor of Therapeutics and Diagnosis in the Jefferson Medical College,

GENERAL THERAPEUTICS,

and

Edward Martin, M.D.

Formerly Professor of Surgery in the University of Pennsylvania,

SURGICAL AND GENITO-URINARY THERAPEUTICS.

EDITORIAL OFFICE, N. W. Cor. 18th and Spruce Streets, PHILADELPHIA, PA.

SUBSCRIPTION RATES:

United States and Mexico, one year, ...	Two Dollars.
Canada, one year, ...	Two Dollars and Fifty Cents.
Foreign Countries (postage prepaid), one year, . . .	Ten Shillings.

E. G. SWIFT, Publisher, - - - DETROIT, MICHIGAN, U. S. A.

FOREIGN OFFICES:

LONDON, ENGLAND— 50 & 54 Beak St., Regent St., W. SYDNEY, N. S. W., AUSTRALIA—125 York St.
WALKERVILLE, ONT., CANADA. MONTREAL, QUE., CANADA—45 St. Alexander St.
BOMBAY, INDIA—70 Hornby Road.

Entered at the Post-Office at Detroit, Mich., as second-class mail matter.

COPYRIGHT, 1920, BY E. G. SWIFT.

An Effective Remedy *for*
Nervous Sleepless Patients

NEURONIDIA

Palatable Well-Tolerated Reliable

Allaying Restlessness and Producing Refreshing Sleep.

Especially indicated in insomnia from mental strain, neurasthenia and other neuroses; also an excellent sedative in sea-sickness.

Literature on Request

Schieffelin & Co.
NEW YORK

Important Therapeutic Indications in Diseases of the Urinary Tract

Fulfilled by

URIFORM

Highly recommended in the treatment of

CHRONIC URETHRITIS
PROSTATITIS
VESICAL CATARRH
VESICULITIS
PYELITIS

BECAUSE:

It sterilizes the Urine
Arrests Discharge
Reduces Congestion
Allays Pain

DOSE: One to two teaspoonfuls three times daily.

Literature and Sample on request.

Schieffelin & Co.
New York

THE THERAPEUTIC GAZETTE

INCORPORATING

MEDICINE AND THE MEDICAL AGE

Whole Series. Vol. XLIV. | DETROIT, MICH., MARCH 15, 1920. | Third Series. Vol. XXXVI, No. 3.

ORIGINAL COMMUNICATIONS.

PRURITUS VULVAE: ITS SIGNIFICANCE AND TREATMENT.

BY P. BROOKE BLAND, M.D., F.A.C.S.,

Gynecologist to St. Joseph's Hospital; Assistant Gynecologist to Jefferson Hospital; Assistant Professor Gynecology, Jefferson Medical College, Philadelphia, Pa.

Pruritus vulvæ, or itching of the external female genitals, is a pronounced and constant manifestation in all forms of local irritation of the vulva, and in addition it is frequently a very prominent symptom in certain forms of grave constitutional disease. It is important, therefore, to look always upon this phenomenon not as a specific entity, but as a manifestation of some local or systemic affection. There is, perhaps, no other condition in the realm of gynecology which so frequently and erroneously receives such a wide variety of therapeutic measures, and in which but little effort has been instituted to discover its exciting cause. Indeed, it is not unusual to observe patients who have been treated for months or even years with all forms of topical applications in whom no special investigation has been practiced to determine the etiological factor. Moreover, no other disturbance is associated with such a pronounced degree of distress and embarrassment as pruritus, and it behooves us in caring for these cases first to determine positively the underlying responsibility. This, as in all other lesions, is our fundamental duty.

ETIOLOGY.

In considering first the etiology of this distressing condition, it is imperatively important to remember that not only are pathological states responsible, but that frequently physiological conditions are associated with the trouble. Therefore it is well first of all to classify the cause of pruritus into physiological and pathological. The pathological causes would naturally be subdivided into local and general, or, in other words, cases resulting from some local or systemic disease.

The most common physiological condition associated with pruritus is menstruation, and nearly all women suffer to a greater or less degree with itching during the menstrual period. This is due, no doubt, first, to the intense congestion of the pelvic structures; second, to the irritation of the menstrual discharge; third, to the mechanical irritation of the napkin; and fourth, to irritation from decomposition of the menstrual flow in those especially who fail to keep zealously clean. As a physiological cause, however, pregnancy is the most common, and in some instances pruritus begins in the very early months and continues with increasing severity throughout the course of gestation. Indeed, in some cases, this annoyance becomes most marked and the patient is unable to obtain rest either by day or by night. No general or local measure seems to afford relief, and the trouble does not improve until after the pregnancy is completed. This has led some men to advocate the therapeutic termination of the gestation, and the operation of therapeutic abortion is described and recommended in some text-books. This

rather radical measure, I find, has been resorted to on not infrequent occasions. The treatment, however, is ultra-radical and certainly must find but a very contracted field of utility. Personally I should exhaust every other medical resource before resorting to such a procedure. Fortunately the majority of cases complicating pregnancy are, as a rule, comparatively mild. These cases, therefore, generally respond to ordinary medical agencies.

SYSTEMIC CAUSES.

Those cases resulting from systemic disease in order of frequency are: (*a*) glycosuria; (*b*) diabetes; (*c*) nephritis; (*d*) acidosis; (*e*) neuroses; (*f*) various forms of autointoxication, as expressed by the term "the diatheses." Sugar in the urine, whether due to a transient glycosuria or a true diabetes, is quite commonly associated with pruritus, and, indeed, this annoyance may be the first significant symptom of this grave constitutional malady. Occasionally we have observed patients suffering with diabetic pruritus for months and years in whom a urinary analysis had not been made. Fortunately, this grave error is relatively uncommon to-day, but still it is found to occur. The first duty of the physician then in searching for the exciting cause of the trouble should consist in a careful urinary examination. Nephritis, acidosis, and the so-called diatheses are all associated, more or less, with vulvar itching. Systemically one must also keep in mind the possibility of endocrine dysfunction as a cause. Hypofunction resulting in sclerotic changes are similar to those observed in the menopause.

LOCAL CAUSES.

As to local pathological causes: we find excessive acidity of the vaginal secretion, profuse leucorrheal discharge, purulent discharge, highly acid urine, uncleanliness, foreign body irritation: (*a*) pessaries; (*b*) tampons; (*c*) miscellaneous bodies, masturbation, vegetations, urinary and fecal fistula, animal parasites: (1) pediculi, (2) ascaris, (3) oxyuris, neuroses, and all forms of inflammation, ulceration, and neoplasms. In fact all local lesions of the vulva productive of irritation are constantly associated with pruritus. In most instances this is the first symptom suggestive of trouble, the first to attract attention. It is present in profuse vaginal discharge of whatever origin, in the irritation resulting from decomposing tampons, pessaries, and all foreign bodies in general; in the presence of animal parasites, especially pinworms observed so commonly in little girls; also in kraurosis and in the sclerotic changes resulting from the climacteric. In addition to the multiplicity of both general and local causes of pruritus there still remains a type in which no special excitant is demonstrable. To this the well-worn term idiopathic has been applied. In these cases, however, Seligman claims to have discovered a diplococcus. This organism, he states, is somewhat smaller than the gonococcus, and differs also from the latter germ in that it is Gram-positive.

THE SKIN CHANGES.

From what has been stated concerning the causes of pruritus, one would naturally conclude that the local appearance of the condition must be extremely variable. One, of course, would assume or expect the skin picture to resemble the lesion responsible for the itching, as in vulvitis, lupus, benign tumor, or epithelioma. In the typical diabetic or so-called idiopathic type, the changes are rather characteristic and depend, in a measure, on the duration, extent, and severity of the trouble. One may state that commonly in mild cases the superficial lesions of pruritus may manifest themselves first in small isolated spots. Occasionally lesions are observed not larger than a pinhead, and only three or four in number. These are usually located on the surface of the labia and show very slight superficial ulceration. This perhaps is traumatic in origin and results from constant rubbing. In other instances the lesions are moderately diffuse and may present a circum-

scribed spot of varying extent involving different sections of the vulva — for instance, a section of one labia, a section in the region of the clitoris, another on the opposite labia, and still others in the skin perineum. In extensive cases all of the tissue external to the hymen may be involved, and indeed the condition may extend within the latter structure. The skin changes, however, are not limited to the superficial epithelium, but involve the deeper layers, particularly the papillary layer. This exhibits the signs of a low-grade or subcute inflammatory process. Webster looks upon this change as a slow fibrosis. There is undoubtedly a distinct fibrous change, for the skin becomes thick, leathery, flabby, saggy, and pendulous. This fibrosis, while at first hypertrophic or hyperplastic, in the later stages becomes atrophic and may cover the vulva as a thin film of fissured fibrous tissue, resulting eventually in a small percentage of cases, at least, in kraurosis. No doubt some cases of the latter condition have started primarily as obstinate types of pruritus. Fortunately the atrophic or sclerotic process is extremely slow in development, and kraurosis as a sequence, therefore, is relatively unusual.

In addition to the three lesions mentioned above, we find also absorption of the coloring matter of the skin. The normal yellowish tinge or yellowish-white tint disappears. The structure becomes decidedly whitish in character and strikingly resembles the skin picture of leukoplakia.

We find in pruritus, therefore, four distinct skin lesions: first, superficial desquamation with ulceration; second, hyperplasia or hyperplastic fibrosis; third, atrophy or sclerosis; and fourth, discoloration. These lesions, however, it is taught, are not primary, but secondary, and result from the persistent application of trauma in scratching and rubbing.

TREATMENT.

The treatment of the condition naturally resolves itself into the treatment of the condition responsible, the primary cause. Therefore, in applying treatment one must first search assiduously for the exciting factor. One could very well classify the treatment, however, into medical, electrical, and surgical. In ordinary simple cases the rigid rules of cleanliness will, in the majority of cases, overcome the condition. The patient should be instructed to keep the parts scrupulously clean. If there exists a tendency for the accumulation of smegma and secretion, the parts should be scrubbed with alcoholic tincture of green soap and warm water. This simple measure will frequently control the milder cases.

In the more violent types our custom is to first shave the vulva and then thoroughly scrub the parts with a coarse cloth saturated with two drachms of tincture of green soap in a quart of warm water. The scrubbing should be repeated for two or three successive days. The patient is then instructed to return, and a generous painting of pure tincture of iodine is applied to all the external parts. Ordinarily this causes quite severe burning, and should never be employed until seventy-two hours after shaving. The application of iodine immediately after shaving would be almost unbearable. We further instruct the patient to vigorously wash the vulva with the green soap solution every morning and evening. After washing, the parts should be thoroughly dried and a three-per-cent solution of iodine in alboline applied. In addition the patient is advised to use an alkaline douche twice daily. We prescribe a douche composed of the following: Menthol, two drachms; camphor, two drachms; methyl salicylate, two drachms; sodium borate, three ounces; sodium bicarbonate, three ounces. A teaspoonful of the powder is added to two quarts of hot water, and, as stated, is used twice daily. The temperature of this solution should be at 110° F. Certain general measures also are recommended. Even though sugar may be absent from the urine, we advise the patient to refrain from all starchy and sugary foods. The acidity of the urine should be reduced by the administration of alkalies, and

diluted, by instructing the patient to drink large quantities of water. The skin in general should be kept in good condition, and a warm bath insisted upon every night.

Since instituting the measures outlined above, we have not failed to relieve a case. Some of the patients had suffered with the trouble for months and years. I realize this is a very broad statement to make, but the results justify the claim. We have employed guaiacol ointment and have obtained moderate success with this agent. This material is considered by Seligman to be a specific in the so-called idiopathic types.

To-day the *x*-ray and radium are very extensively used in the treatment of pruritus, and the results reported are quite uniformly favorable. We have used, also, both the *x*-ray and radium largely to determine the value of these agencies, but the results have not been as gratifying as those obtained by the comparatively simple method outlined above. Various surgical measures are also utilized. B. C. Hirst reports the complete alleviation of a most obstinate case after resection or rather division of the pudendal nerves. Holland reports a series of cases relieved by inducing sacral anesthesia by the injection of a weak solution of procaine in sterile water. The injections are made in the tissues about the sacrum. We have not had any experience with these methods.

In cases in which the skin lesion shows a tendency to atrophy, sclerosis, and fissure, the question of surgery should be very strongly considered, for the possibility of kraurosis or malignant degeneration must always be kept in mind. Should an area of fissure or ulceration persist and show the slightest sign of infiltration, early extirpation of the vulva (vulvectomy) should be resorted to. No other course should be followed, because, as is well known, malignancy of the vulva is the most virulent type of malignant disease. Procrastination in these cases by employing medication or radiation will only court distaster.

1621 Spruce Street.

A CHEMICAL AND CLINICAL STUDY OF CHLORLYPTUS, A NEW CHLORINATED ANTISEPTIC.[1]

BY PHILIP B. HAWK, Ph.D., J. CHALMERS Da COSTA, M.D., CLARENCE A. SMITH, Ph.D., MARTIN E. REHFUSS, M.D., AND GUY D. SCHOONMAKER, M.D.;

WITH THE COLLABORATION OF

HAMILTON R. FISHBACK, M.D., WILLIAM H. SPENCER, M.D., BRUCE L. FLEMING, B.S., AND ERNEST L. SMALL.

[From Jefferson Hospital, Episcopal Hospital, and the Laboratory of Physiological Chemistry of Jefferson Medical College, Philadelphia.]

Chlorlyptus is a synthesized chlorinated compound of oil of eucalyptus, and contains approximately 25 per cent of chlorine. In preparing the antiseptic the oil of eucalyptus is first ozonized and then chlorinated by a special process until the oil contains at least 25 per cent of chlorine by weight. This forms a dichloride of eucalyptus oil which possesses the formula, $C_{10}H_{16}OCl_2$.

Chemical and Physical Tests.—Chlorlyptus is a heavy, oily liquid, of a dark, red-brown color. It is acid in reaction and possesses a pleasant aromatic odor which is slightly chlorinous. Its specific gravity should not be less than 1.19, and the refractive index at 23.5° C. should be between 1.5112 and 1.5150. It is optically inactive and exhibits no absorption bands when examined spectroscopically.

It is easily soluble in paraffin oil, alcohol, and ether, less readily soluble in chloroform, and but very slightly soluble in water. It dissolves in concentrated sulphuric acid with a slight darkening and the evolution of hydrochloric acid. It is insoluble in and not acted on by cold nitric acid. It is vigorously attacked by a mixture of nitric

[1]Part of the expense of this investigation was defrayed by a grant from Mrs. M. H. Henderson.

and sulphuric acids, and by fuming nitric acid.

An alcoholic solution of silver nitrate added to an alcoholic solution of chlorlyptus yields a heavy precipitate of silver chloride. An alcoholic solution of lead acetate when added to an alcoholic solution of chlorlyptus gives a white precipitate.

The addition of an alcoholic solution of chlorlyptus to a solution of potassium iodide in alcohol fails to liberate iodine, showing the absence of free chlorine in the chlorlyptus. On allowing the mixture to stand for some time iodine is liberated.

The addition to the oil of a mixture of equal parts of 8-per-cent potassium iodate and 48-per-cent potassium iodide brings about the liberation of iodine on standing.

In the presence of strong alkali in solid form (*e.g.*, sodium hydroxide) chlorlyptus gives a green reaction which turns brown on standing a few minutes. This reaction is not obtained if a 10-per-cent solution of sodium hydroxide is used, but is given when a saturated solution is employed.

On distillation, chlorlyptus begins to boil at about 100° C. The temperature rises as distillation continues, accompanied by the decomposition of the chlorlyptus and the evolution of hydrochloric acid and chlorine.

With *auramine* paper chlorlyptus gives a purple reaction. In making this test the paper should not be allowed to come in contact with the antiseptic, but should merely be held at the open mouth of the bottle containing the substance. This same reaction is given by volatile mineral acids, *e.g.*, hydrochloric and nitric.

When brought into contact with water chlorlyptus undergoes a process of hydrolysis, as is shown by the following: After shaking 5 Cc. of chlorlyptus with 25 times its volume of distilled water in a separatory funnel and allowing the oil to settle, the supernatant liquid has such an acidity that 1 Cc., diluted with 15 Cc. of water, is neutralized (distinct pink with 2 drops of 1-per-cent phenolphthalein) by 0.45 Cc. hundredth normal sodium hydroxide. Of this total acidity about 25 per cent is free mineral acid as shown by titration with dimethylaminoazobenzene (Töpfer's reagent) as indicator, and by Sahli's method (titration of the iodine liberated from a potassium iodide-potassium iodate mixture with N/100 thiosulphate). On standing several hours (over night) the total acidity increases to the equivalent of about 0.65 Cc., of which approximately 30 per cent is free mineral acid. After standing for two weeks the total acidity value is about 1.10 Cc., of which approximately two-thirds is mineral acid; and when allowed to stand for a period of three months the acidity rises to 2.85 Cc., with something over 75 per cent represented by free acid.

Quantitative Estimation of Total Chlorine.—When 0.15 gramme to 0.2 gramme of chlorlyptus (accurately weighed) is carefully ignited in a porcelain crucible with a large excess of fusion mixture (2 parts of sodium carbonate and 1 part potassium nitrate), and the resulting melt is dissolved in distilled water and neutralized with nitric acid, the chlorides may be precipitated by silver nitrate and determined either gravimetrically or volumetrically. Chlorlyptus analyzed in this manner shows approximately 25 per cent of chlorine. In igniting the mixture special care must be taken to avoid loss of chlorine, either free or as hydrochloric acid, as this is apt to occur when the material is heated too vigorously, particularly in the early stages of the ignition.

CLINICAL STUDIES.[1]

Chlorlyptus may be used in the treatment of all conditions in which it is desirable to have a non-irritating antiseptic acting over an extended period of time.[2]

In our clinical studies we treated abscesses, burns, infected wounds, both superficial and deep, otitis media, urethritis, chancroids, furunculosis, intestinal intoxications, etc. We used the antiseptic in four

---

[1]Other cases have been reported by Schell: *Medical Record*, May 11, 1918.

[2]The chlorlyptus is manufactured by the Weeks Chemical Company, Philadelphia.

different forms according to the needs of the particular case—*i.e.*, (1) undiluted; (2) a solution in paraffin oil; (3) an ointment mixed with petrolatum; (4) a water admixture.

The following typical cases will serve to illustrate the usefulness of the antiseptic:

Case 9.—Periurethral abscess. 8/3/18, considerable swelling at junction of penis and scrotum, with acute pain. Abscess incised for drainage, and dressed with chorlyptus in paraffin oil (1:5). 8/5/18, free drainage with relief of pain. Cleaned and dressed with same solution. 8/7/18, practically no discharge; wound healing; cleaned and dressed as before. 8/9/18, wound clean and practically healed; no swelling nor pain; dressed as before.

Case 20.—Acute anterior urethritis. 8/5/18, patient complained of pain in affected part and great annoyance from the discharge. Anterior urethra irrigated with chlorlyptus (1 drachm to a gallon of water). Treatment repeated daily for two weeks (Sunday excepted); discharge remaining about same in quantity, but less pain was experienced. 8/19/18, condition improved; discharge decidedly lessened. Irrigation as above continued for three consecutive days with marked improvement. Patient then discharged.

Case 27.—Carbuncle. Patient reported 9/5/18 with a large carbuncle on one shoulder and another on the back of the neck. Each freely incised and pus cleaned away with dry sponge; dressed with chlorlyptus in oil (1:5). Next day very little pus; surface cleaned and wound dressed with same solution. 9/8/18, discharge slight, and two days later still less, with some granulation tissue; and 9/13/18, scarcely any discharge and abundance of granulation tissue. Same dressing as before, each of these days. 9/15/18, both wounds clean and almost entirely healed; cleaned with same solution and dressed dry. 9/18/18, healing complete. Patient discharged.

Case 38.—Infected wound of foot. Patient admitted suffering from a severe infection of the entire left foot, extending to a point 1½ inches above the ankle. The area was greatly swollen, indurated and edematous. The day following admission a small opening was made on the dorsum of the foot and only a few drachms of pus obtained. On May 25 another slight incision was made a few inches away from the first, and a small amount of pus was removed. On May 30 the wound was draining freely and the foot was less swollen. On June 3 the wound was in the same condition and chlorlyptus in water (1 per cent) was used as a wet dressing. On June 6 the wound was rapidly clearing up under the above treatment. On June 10, 10-per-cent chlorlyptus in oil was injected into the wound, followed by some improvement, although there was still considerable pus present. On June 15 there was only one drop of pus present after twenty-four hours. June 24, no pus visible and the condition of the wound was good. June 28, clean granulation tissue present. June 30, wound healed completely. Patient discharged.

Case 45.—Burns. Patient admitted with second and third degree burns over an area of about 15 square inches on the left thorax, and of about 80 square inches on the right thorax, together with burns on both arms. Treated by spraying with 10-per-cent solution of chlorlyptus in oil, and applying ointment of 10-per-cent chlorlyptus in petrolatum. No pus was present at any time and healing was remarkably rapid.

Case 53.—Empyema. Following an attack of pneumonia three months previous to admission the patient developed an empyema. On June 28, 1918, a thoracotomy was performed, a great deal of pus evacuated, and a fenestrated rubber tube inserted for drainage. The wound was irrigated with potassium permanganate solution without apparent improvement. A 10-per-cent solution of chlorlyptus in oil was then injected into the cavity, and following this treatment the empyema cleared up after two weeks. Patient left the hospital in good condition and was able to carry out

her usual household duties without discomfort.

Case 119.—Severe otitis media. Left drum incised and about ½ drachm of pus evacuated by suction. Packed with gauze saturated with chlorlyptus (1:5 in oil). There was no pus on the second day, and on the fourth day the incision in the drum membrane had healed. No further middle-ear discomfort.

Internal Use of Chlorlyptus.—The antiseptic seems to be somewhat irritating to the stomach, but this was overcome by putting it in double gelatin capsules, the outer capsule being formol hardened in order that it be not affected in the stomach. Administration was begun in 3-minim doses, *after meals,* and in no instance was any toxic action noted. The most disagreeable after-action is a slight regurgitation producing a taste of the drug in the mouth, which effect appears at once if the drug is given on an empty stomach, and is best avoided by adhering to the above form of administration. On increasing the dose to 5 minims and giving as much as 25 minims daily, regurgitation and taste were more noticeable, but were not of sufficient severity to cause complaint by any patient. There was no definite laxative or constipating effect, nor was there any nausea or vomiting. The substance was administered principally in cases which showed definite toxic disturbances connected with the gastrointestinal tract. The most brilliant effect observed was in a very persistent urticaria of three weeks' duration, in which nearly the whole body was involved. A vegetable and fruit diet, with chlorlyptus in 3-minim doses four times daily, resulted in the disappearance of the eruption. This is particularly interesting inasmuch as the patient had received, previously, the same diet without the drug, with no beneficial results.

Use in Nose and Throat.—Chlorlyptus in paraffin oil (1:10) was used with benefit as a nasal spray. When so used it caused a slight secretion of watery fluid, lasting about one-half hour, which in many cases is desirable. There was never any evidence of an inflammatory reaction following its use in this manner.

Local applications to the throat of chlorlyptus in oil (1:5) were of evident benefit, and never produced evidence of irritation.

Mode of Action of Chlorlyptus.—It is not easy to demonstrate definitely and conclusively just how chlorlyptus acts. However, we believe the mode of action to be very simple: in fact much simpler than the mode of action of dichloramine "T." If we test the reaction of chlorlyptus we will find it to be acid. Inasmuch as the substance is chlorinated, one might expect to find the acidity to be due entirely to the hydrochloric acid present. Nevertheless the concentration of free hydrochloric acid is very low, although the method of manufacture may have caused the formation of various other acid compounds whose identity we have been unable to establish. However, if we hydrolyze chlorlyptus we liberate free hydrochloric acid. It seems probable, therefore, that such hydrolysis occurs when chlorlyptus is used in wound treatment, and that at least a part of its germicidal power is due to the hydrochloric acid then liberated. A thin film of oil over the moist wound makes a fine setting for the hydrolysis, which is to liberate hydrochloric acid. As soon as the oil is brought into contact with the moist tissue the admixture of oil and water is at once followed by the gradual evolution of hydrochloric acid, and the germicidal action of the chlorlyptus is thus quickly called into play.[3] That hydrochloric acid is a very potent germicide is, of course, well known.[4] For example, the established germicidal power of the gastric juice of every normal stomach is due to the hydrochloric acid which is present. Nevertheless, inasmuch as chlorlyptus acts so very rapidly and efficiently in wound healing it may very well be that a part of the good work is accom-

[3]Marshall: *Jour. Am. Med. Assn.,* 73, 684, 1919. Lillie, Clowes & Chambers: Science, 49, 389, 1919.
[4]Scheer: *Arch. f. Hygiene,* 88, 130, 1919.

plished by factors other than the hydrochloric acid formed by hydrolysis. Be that as it may, the most important fact for the surgeon is that the chlorlyptus "does the work," in the majority of cases, fully as rapidly and with less irritation than do other chlorinated antiseptics. Furthermore, it seems that chlorlyptus is more suitable for use in the genito-urinary tract than are other chlorinated antiseptics, and may also be used with good results in the lower intestine.

Chlorlyptus has no corrosive action upon metals and may be used in the ordinary oil spray of metal parts. This is another advantage over dichloramine "T."

WILLIAM OSLER AS A TEACHER AND CLINICIAN.[1]

BY HOBART AMORY HARE, M.D.,
Professor of Therapeutics and Diagnosis in the Jefferson Medical College of Philadelphia.

The President of this College has asked me to speak to-night of Osler as a Clinician and Teacher. This is a theme that might well be divided among several Fellows, each of whom could readily find material for a long contribution to the proceedings, for Osler did not teach medicine alone even in all its parts. He taught medical men to love the literature of the profession as well as the highest type of general literature, and so he taught us culture, and that the wearied mind could find comfort, sustenance, and inspiration in paths wherein we had not trod in this workaday world. His love of the Fathers in Medicine served to teach us that we should learn what they did before we boast of what we do, and his unusual knowledge of classical literature was utilized to charm us as we labored. Always faithful to the cause to which he had devoted his life, he never left it so far from his reach that one forgot he was a doctor of physic, but he led us from the dry fields of exact science, when the spirit moved him, into the tropical verdure of cognate things, now touching the humanities, as in Aequænimitas, now placing before us a mental feast that satisfied the soul and made us better men.

Partly because the topic is too great and wide and partly because others have spoken, or will speak, of Osler in Toronto, in Montreal, in Baltimore, and in London, I shall deal with him as a clinician and teacher in Philadelphia, and this is more proper because it was here that he fully developed, or at least where his development had an opportunity to expand. Teaching the so-called Institutes of Medicine in Montreal he was nevertheless a bedside clinician. Here his knowledge of the "institutes" formed a foundation on which we saw him place his early superstructure, here his house was completed, and in it he stored his Lares and Penates in the form of the friendship of great men, a large hospital experience, and special training as a teacher at the bedside. It may be truly said that Osler's career in Philadelphia was the period of his full development. When he went to Baltimore he was complete, and Johns Hopkins Hospital and Medical School got the benefit of his full growth.

I do not speak of William Osler as clinician and teacher because I had the privilege of sitting at his feet as an undergraduate pupil. He came to Philadelphia in the fall of 1884, the year of my graduation, and his arrival created the keenest interest among all medical men hereabouts because he was, to use a political phrase, "a dark horse." Alfred Stillé had offered his resignation from the chair of Practice of Medicine in the University of Pennsylvania in 1879, and had been persuaded much against his will to continue another five years.

As the year 1884 began it became evident that the then Professor of Clinical Medicine, William Pepper 2nd, would suc-

[1] Read before the College of Physicians of Philadelphia, March 3, 1920.

ceed Stillé, and a lively canvass on the part of several junior teachers was begun for Pepper's place. One of these is now dead, the other, who long since retired from practice, led the van of candidates, and it was generally agreed, among the youngsters at least, that the senior of the two was slated for the place. In the meantime, however, the late Horatio C. Wood visited Montreal, heard of William Osler as a teacher and investigator, and meeting him fell a willing victim to his charm. He at once returned to this city filled with unbounded enthusiasm for Osler, and, although he was anything but a diplomatist, his forceful presentation of Osler's qualifications, combined with the praises of the Canadian's qualities which came from every source when inquiry was made, resulted in Osler's election. And it may be truly said that never in its history did the University act so wisely. Indeed it acted more wisely than Osler's most warm admirers dreamt of.

To understand this it is necessary to recall certain facts which antedate the time of Osler's arrival. He came to Philadelphia when medical education was undergoing more radical changes than ever before or since. The three-year course had only recently become obligatory in a few schools, of which the University was one, and the class of 1884 when it entered in 1881 was the first one required to pass an entrance examination, if its would-be members did not possess high-school or college credentials. For some years prior to that time the Faculty had been divided as to the wisdom of these and other changes, the older members such as Stillé, Penrose, and Leidy being loath to change old customs, and the younger men, such as Pepper, Wood, and Tyson, being convinced that it was essential, with the result that to some extent the medical school was a house divided against itself.

Another source of irritation was the fact that the College Department being very small in the number of its students and the medical school very large, the latter was not only a dominant factor as to numbers but as to revenue as well, with the result that the salaries of the medical professors were large and those of the college professors small. On the advent of Pepper as Provost, he seeing the University as a whole, arranged that the medical school should part with some of its large earnings for the support of the college. This greatly disturbed the whole medical faculty, that is both factions, as it was feared that what with a small class due to a three-year course, and entrance requirements, and a percentage of earnings deducted for the college, there would be little left for the medical teachers at a time when more income than ever was needed to expand the novel ideas in medical education.

There were practically no laboratories, except that of chemistry, as we know that term to-day, and few ward classes. The faculty was perhaps the strongest that the University has ever known, but while Agnew, Ashhurst, Goodell, Wood and Stillé were each facile princeps in their departments, some of the other chairs were, by force of circumstances, filled by men whose chief ambition and ability were along quite different lines. Harrison Allen, who was a learned comparative anatomist, lectured on physiology and practiced laryngology for a living; Leidy, with transcendent abilities in every branch of natural history, had to teach ordinary anatomy; and Tyson, who in turn had taught physiology, microscopy and urinalysis, although an active clinician, was Professor of Pathology.

That these men taught well and faithfully goes without saying, but none of them had a chance to do anything in the line in which they loved to labor. In other words the oldest and best medical school in the country had reached a curious state of what may be given the paradoxical term "seething inertia." There were many professional, financial, educational and developmental problems to be solved. The older men felt that they were being crowded out by the

younger men, and the younger men felt that they were crusaders for the right.

This aspect of affairs might be discussed further, but what I have said suffices to show that Osler came to Philadelphia at a time when many a man would have proved a misfit even if possessed of brilliant parts. His arrival spelt the doom of the ambitions of a number of medical clinicians by no means unworthy; it meant that Pepper with all his brilliancy was to find a foeman worthy of his steel in the faculty and as a teacher, and that the element that was for great changes in teaching was fortified.

The remarkable part of Osler's entrance was that while the report of his election raised waves of regret and indignation, his actual plunge in the pond at once had the effect of making its surface placid, and this without there being any manifest effort on his part to ingratiate himself with any one or all of the factions. He entered so gracefully and ably and so naturally that he seemed almost at once to be one of us young and old. He was gracious to his elders, cordial to his contemporaries, encouraging to his juniors, and jovial almost to the point of frivolity with all, but the dominant factor, that made his way successful with all hands, was, to use a student phrase, "he was up"—that is, he knew his subject and knew how to teach what he knew, and no one knew a subject better than he did when a show-down of knowledge was to be made. He took an active part not only in University matters but in all the medical societies that tended to research, and he never spoke without impressing his hearers with his familiarity with his topic. All these facts explain how it was that he won his way so rapidly with the medical men associated with him as well as with the students.

He had on his arrival one handicap that in a strong man meant little, but in a weak man would have been fatal to a lecturer, namely, a halting English speech or mannerism which he later largely lost. I well recall his first clinic in the University Hospital six months after I graduated. His patient was a man with a retroperitoneal sarcoma—"Lobstein's sarcoma" I remember he called it, and every sentence began with a very English "Ah!" As the class were accustomed to the fluency of Pepper, Wood, Goodell, and Agnew, this lecture seemed stumbling, and certainly Osler was not playing for popularity among the students when he chose a rare and relatively uninteresting topic for his first discourse.

His first ward class was an eye-opener. In it he fairly frolicked in enthusiastic delight, and in a few moments had every man intensely interested and avid for more. Every new specimen that he came to at autopsy, and every interesting manifestation of disease in the living, was to him a treasure, and just as Leidy saw in every flower and stone, and bone, and worm, and rhizopod an inner beauty, so Osler, to change my metaphor, was as the light-hearted child who finding a field of daisies shouts his delight so exultingly that all the other children become interested and gleefully shout with him.

Osler did more than any other man of his day in this city to teach all men that disease is not a horrid thing that some people, called medical men, have to study to earn a living, but a pursuit which a properly trained mind can follow with as keen enjoyment and uplift as an artist can study great pictures or a musician can hear great masters. Before Osler came the student was prone to regard a cancer as a cancer; when Osler left the student studied it as an aggregation of cells possessing untold mysteries to be unraveled, and this is the more remarkable because while he went into the post-mortem room with the joyous demeanor of the youthful Sophocles leading the chorus of victory after the battle of Salamis, he cared little, and admitted he knew less, as to how the victory could perhaps have been reached by proper treatment before death took place. This lack of interest in therapy may be said to have been the one

weak spot in Osler's otherwise perfectly rounded out medical qualities. He joyously quoted the remark of a colleague that "Osler's therapy consisted in Hope and nux vomica."

Referring once more to the period at which Osler came here, let me point out that any attempt at original study or research was almost unknown, at least among the younger men. The transitional epoch from the old methods, of purely didactic teaching of two years, to the laboratory methods of to-day was at its very beginning, and even if a youngster possessed the investigative spirit no facilities were offered by which that spirit could be developed, unless he had the means and the will to develop a laboratory of his own. Osler's enthusiasm soon made an opening, and almost within a month of his arrival he had rigged up a small clinical laboratory, under a part of the hospital amphitheater, and there, amid surroundings so discouraging as to foil the novice, he produced an atmosphere so encouraging and helpful that young fellows trooped to his side. It was as if Beethoven were playing in a hovel. What mattered it if the master played, in each case the physical surroundings served only to emphasize the brilliancy of the central figure. And so it may be said that Osler on entering Philadelphia carried the torch of original research in clinical medicine, and every now and again touched unlit torches that only needed his hand to make them burn, torches which have happily been carried into many distant parts, each lighting other torches, until like sacred flames that never die, but multiply, a multitude now exist, some of which are known as torches which he lit, and others, though burning brightly, wot not the source of their living fire.

It is a characteristic of those who love medicine, or any other branch of science, that they delight in teaching others with ease what they have learned by labor. Those of us who knew Leidy recall with what pleasure he would instruct us about some theme that he was familiar with. He seemed to get the same enjoyment out of it that a young father takes in teaching his infant son how to walk. And so did Osler. Indeed it may be said that in their walks of life most of those who were capable of learning can still be recognized by their Oslerial gait—not as to their legs but in their mental progress. Osler, therefore, developed the creed of original study not only here, but everywhere where his apostles migrated. He found a field fertile but unsown, and he raised a harvest that not only reseeds itself here but with each additional year scatters its grain in ever-widening fertile fields. Indeed it may be said that it has long since ceased to be a matter of seeding but rather one of catalysis. Even though he is gone, the living particles of enthusiasm are converting many a low metal into a true gold.

No man whose metal was not pewter did not become the brighter for this Midas touch. Further than this, if he did not brighten as rapidly as the rest Osler did not cast him aside as tiresome or worthless. On the contrary, to change my metaphor, he was often interested in the pathological state of mind that seemed refractory, and by interest, or judgment, he soon found where the shell was thin and opened him up, as much to the surprise of others as to the student, whereupon he helped the youngster find himself. With some he used firmness, with others cajolery, with still others he feigned annoyance, and, last of all, with some by an affectionate regard, because deep in that man's soul Osler was the first to see lovable qualities.

A very remarkable fact is that whatever Osler did he never lacked an inner dignity that even the most frivolous conduct could efface. I well remember on one occasion dining with Osler and his wife while they lived in Baltimore. The other guest was an eminent French clinician whose knowledge of English was scanty. Toward the end of the meal a servant handed Osler a package. It came from a grateful patient and was, if I

recall correctly, a very ancient copy of Bunyan's "Pilgrim's Progress." Osler no sooner saw what it was than he uttered a cry of delight, and jumping from his seat at the table ran about the first floor of the house like a schoolboy of ten years. I shall never forget the expression of that Frenchman, and I confess that for a moment I thought my host had lost his mind. In a moment he was the every-day Osler we all knew, and was telling his guests, with particular pains to make his chief guest grasp his meaning, what a treasure had come to him.

On still another occasion in Washington during the first meeting of the Association of American Physicians, with headquarters at Wormley's Hotel, I was asked by a reporter to tell him about the great men in attendance. I was there only as a medical youngster and referred him to Osler. Osler took him to the breakfast-room door. In a far-off corner sat a distant relative of mine, Dr. Francis Delafield, a great consultant in New York and by no means jovial or frivolous. The reporter was told that this somewhat aged man was devoted to baseball as a player, that he could not find time to play with regular teams, so he got groups of street urchins to play the game with him on vacant lots, and all of this appeared in cold type the next morning. Delafield was not pleased. I never knew if he knew who was the guilty one, but I do know that in later years he was one of Osler's warmest friends and admirers.

It may be asked, Why when discussing Osler as a clinician and teacher do you bring in these outbursts of youth? I have brought them in because they serve to show a buoyancy of spirit that could not be submerged. Such outbursts by an ordinary man would be splashes of mud on a blank canvas. With Osler they were the dashes of scarlet by which the great artist suddenly changes a dark picture into a glowing fire of sunshine. Combined with his other qualities they served to tell every man that he possessed all good human attributes. Unconsciously we learned that enthusiasm could be controlled by judgment, lightheartedness by thought, buoyancy by ballast, and last of all, grief by serenity and the thought of others.

It is not out of place, Mr. President, that this the oldest medical body on this continent shall set aside an evening when the sterling qualities of one of its Fellows is considered. For Osler went about doing good; he taught us, as Robert Louis Stevenson said, that "it is better to travel happily than to arrive," and although absent from our halls these many years it may be truly said that his spirit never left us, and that while we live, and this college lives, it will continue to exert upon the whole of American medicine a goodly influence.

Those of us who knew Osler well still feel the glow of his personality, and those that did not nevertheless bask in that same sunshine, the sunshine of high ideals, of noble thoughts, of gentleness and kindness, of firmness for the right, of love of one's fellowmen, and, not least, the love of that profession of medicine which he so gracefully adorned and at whose shrine he placed his noble qualities and his faithful service.

When the most cruel blow to mortal man was given him in the death of his only son in the war he taught us that to be brave when bravery seems impossible is true courage, when stricken himself by the Captain of the Men of Death, as he called pneumonia, he still sent across the sea his Christmas message of good cheer, but four days before he died from a hemorrhage complicating an empyema. He taught us in life to be glad, in sorrow to be brave, and he left behind him what few men leave—the happiness of a great friendship, the exultation of a great spirit, and the stimulus of a noble life. To quote Kipling's verse:

"He scarce had need to doff his pride
Or slough the dross of earth
E'en as he trod that day to God
So walked he from his birth,
In happiness and gentleness,
In honor and clean mirth."

LATE SYMPTOMS OF TWISTED PEDICLE TUMORS.

BY GEORGE ERETY SHOEMAKER, M.D., F.A.C.S.,
Gynecologist to the Presbyterian Hospital, Philadelphia.

All are familiar with the acute conditions which follow immediately upon the occurrence of such twists: acute pain, faintness, prostration, often followed by definite increase in the size of the growth. The presence of a tumor and these acute symptoms would lead any surgeon to perform an immediate section. But if the physician is not called or the tumor remains undiscovered, what may follow is the subject of the present inquiry. First, a long pedicle readily adapts itself to one or several complete turns. Strangulation, followed by necrosis, may not occur. The tumor slowly increases in size and awaits further events.

A short, narrow pedicle, however, may be strangulated completely by one turn; hemorrhage into the sac, if a cyst is in question, may occur and necrotic changes at once begin. The wonderful natural defensive measures now set in. The omentum (the policeman) comes down and closely adheres. Peritonitis follows with resulting adhesions to all surrounding viscera, through which the growth may be completely nourished and the process of decay arrested so that the patient lives on indefinitely.

An opportunity was recently presented for observing the later course of two tumors with strangulated pedicles: one an ovarian cyst, the other a uterine fibroma.

(a) In one of these cases, following the primary attack, which apparently was not recognized as being due to a tumor, the cyst had produced chiefly a stubborn diarrhea which was treated unsuccessfully for weeks by a well-known physician. The woman was seventy-four years old, a multipara, who suffered much from a sense of pressure in the lower abdomen and perineum as though some foreign mass were present. This pressure sense was increased as the bladder filled, and was relieved by urinating or passing flatus. The bowels had been loose for several months, light yellow and foamy, little mucus, no blood. To straighten up into the erect posture was painful. A new physician was later engaged, who called in the writer. Examination showed a flattened cyst closely attached to the uterus and extending four inches above the pubis on the right.

Operation showed a papillary ovarian cyst with an old twisted pedicle; glairy fluid, dark from old blood. It was receiving no nourishment through the pedicle, and had long depended on adhesions entirely for blood supply. These adhesions were to cecum and omentum, which was stained a very dark brown from disorganized blood originally exuding from the strangulated tumor. The stubborn diarrhea present for months had been caused by the irritation, as it completely disappeared on removal of the growth, as did the sense of downward pressure. The latter was caused by complete fixation of the growth above, so that there was no room for an expanding bladder. She remained well after operation in spite of advanced age.

(b) Mrs. Y., aged thirty-three, gave a history when admitted to hospital of severe onset several weeks before; confinement to bed ever since; pain, distention, vomiting, fever. A large tumor had filled the lower abdomen for a long time. The distention of the upper abdomen by gas was now great. Vomiting of greenish fluid was copious and frequent; no fecal odor, no blood; temperature 101°; pulse 116; leucocytes 15,000. A hard, painless tumor occupied the whole lower abdomen; limit of its extension above the umbilicus was obscured by distended stomach and intestine crowded upward.

Diagnosis: Fibroma, peritonitis, partial obstruction. Lavage and enteroclysis with sodium bicarbonate and glucose, three per cent of each, stopped the vomiting. The greenish gastric contents showed occult

blood, otherwise analysis not significant. Continued lavage and enteroclysis improved the distention somewhat, the bowels moved, but the condition remained unsatisfactory.

Operation: Gas-oxygen and morphia. The uterus contained a multiple fibroma reaching above the umbilicus, which was almost free from adhesions. Attached to the left cornu by a small, short, twisted pedicle was a necrotic fibroma five inches in diameter lying above the umbilicus, firmly adherent, covered by brown lymph. Separation of adhesions of distended intestine released thin, brown fluid without odor from among them. The necrotic tumor was first shelled out after cutting its pedicle. Hysterectomy by supravaginal amputation then removed the lower healthy growth. No drainage. Discharged nineteenth day. Wound healed. Condition surprisingly good.

Here it may be noted that, in contrast with the first case, the symptoms were concentrated upon the upper abdomen, vomiting being the most conspicuous and persistent of the group. The peritonitis was strictly localized above the navel, where the necrotic mass was, with a consequent variation in the symptomatology.

As a side issue it may be remarked that a uterine fibroma of considerable size is always a menace. So that even if all symptoms be temporarily removed or absent, the question of the tumor's removal by operation should always be carefully considered.

Still another fibroma with extensive sarcomatous change was recently operated upon.

(*c*) Mrs. Z. In a post-mortem examination a number of years ago (see *Annals of Gynecology and Pediatry*, March, 1891) which was held on a patient dying of heart disease and tumors in the Home for Incurables, the writer found a dermoid cyst of the left ovary several inches in diameter firmly adherent over the right kidney, to which location it had migrated and become adherent. The tumor had apparently been in this locality for many years. Its effects were probably mechanical, only determined by the adjacent organs pressed upon. The patient finally died of valvular heart disease with anasarca, the tumor causing no obvious symptoms at this late period; the early history was unknown.

Symptoms are very misleading at times. A careful bimanual examination including the rectum will yield many surprises, particularly in obscure cases with a past history of an acute abdominal attack.

1906 CHESTNUT STREET.

VACCINE AS A PROPHYLACTIC AGAINST INFLUENZA, AND LOCAL REACTION AS A GUIDE TO IMMUNITY.

GREELEY, in the *Medical Record* of October 11, 1919, concludes:

1. The effects of the administration of vaccine made of the influenza bacillus upon those who had previously presumably suffered from the epidemic of last year, and upon those who had so far escaped it, are exactly those to be expected under the principles of infection and immunity.

2. By observance of the local effects of a dose of vaccine one may determine whether the individual possesses any immunity against influenza, and approximately its degree.

3. A large group of non-immune children, exposed to the infection in an institution where the epidemic had just started, were protected from an attack. and no further cases of the disease occurred in the institution.

4. As a direct consequence of the above, and, indirectly, through knowledge of the protective qualities of vaccines which give rise to similar phenomena when administered in the prophylaxis of other diseases, we may conclude that vaccine made of a mixture of different strains of the influenza bacillus has a definite protective value in preventing influenza in those not already immune to the disease.

EDITORIAL.

THE ACTION OF DIGITALIS UPON THE HEART AND ITS PROPER DOSAGE.

We had supposed that the action of digitalis upon the heart had been sufficiently well studied by means of the modern methods to have given us a fairly clear conception of its sphere of usefulness, yet in a recent issue of the *Quarterly Journal of Medicine* we find an article by Sutherland in which he discusses digitalis in a manner which would lead the novice to believe that this drug had been before the profession but a few years. He points out that comparatively recently Broadbent said that every clinician knows the extraordinary satisfactory results obtained from the administration of digitalis in cases of heart failure and dropsy associated with mitral incompetence, even when the pulse is quite regular and there is no question of auricular fibrillation.

We confess that this view of Broadbent's is our own view, that the information advanced by others in opposition to it has in no way changed our views, and we believe this to be one of the most certain things in medical practice; yet Sutherland quotes Lewis as believing that where there is a normal sequence of chamber contraction, digitalis has failed to show any striking beneficial effects, and Lewis goes so far as to doubt whether Broadbent can place on record a number of observations which will support the opinion he has expressed and which we have just quoted.

Our own experience has taught us that however valuable digitalis may be in slowing the heart and in increasing its regularity in cases of auricular fibrillation, it is even more valuable in ruptured compensation arising from valvular lesions in which there is no difficulty in the transmission of impulses from the sino-auricular node. In the first place there are many instances of rapidity of the heart with normal rhythm in which digitalis without doubt slows this organ by stimulating the vagi, increases the period of cardiac rest and so restores conductivity, irritability, and contractility, and we believe that he who asserts that digitalis is valueless except in auricular fibrillation is doing humanity a vast deal of harm if he succeeds in having any considerable number of followers. By this we do not mean to intimate that digitalis is a cure-all or that when the heart muscle is seriously degenerated it can do much good, but in true ruptured compensation with cardiac fatigue, digitalis, particularly if combined with rest in bed, will produce more brilliant results than in any other condition of cardiac disease, and we make this assertion in the face of one made by Mackenzie, that the reaction to digitalis is far less effective when the rhythm is normal than when there is auricular fibrillation.

Mackenzie admits that digitalis relieves distress of breathing and reduces dropsy, but seems loath to admit that it does this by slowing the pulse. He asserts that in patients with normal rhythm digitalis has induced irregularities of the heart's action arising in the sinus as extrasystoles, as partial heart block, and as pulsus alternans, and with this statement we do not disagree, only adding the important qualification that when such results have followed the physician has used the massive doses which are so essential in fibrillation and which are practically toxic in ordinary ruptured compensation. We fully appreciate the value of rest, but we fail to agree with Mackenzie that when the heart improves rest alone is the cause and digitalis is to receive no credit.

One of the reasons why it is possible for a difference of opinion to arise, in a subject which most of us considered already settled, is that each disputant is discussing a small class of cases instead of taking a broad view of the subject. Thus in Sutherland's studies he used patients suffering from acute or subacute rheumatic

infection who presented a persistently accelerated rate. Such cases are not to be compared in any way with those who have ruptured compensation due to an old mitral regurgitation. The cases that Sutherland observed are essentially cases of myocardial infection of an acute or subacute character, and it is well recognized that where the myocardium is poisoned instead of being dilated and fatigued, digitalis is usually a very disappointing drug, because the muscle which it would ordinarily stimulate has been greatly perverted in function, or partly destroyed, as the result of the toxemia. All of Sutherland's patients too were under fourteen years of age, and we think it holds true that digitalis often does less good in the failing heart of childhood than in the tired heart of adults. We do not agree with Sutherland that slowing of the ventricular rate when digitalis is used is brought about by the induction of partial heart block in the sense that some change is induced in His's bundle. This entirely ignores the physiological fact that stimulation of the vagi slows the heart and that digitalis stimulates these nerves.

Sutherland has however reached some conclusions which seem to be in the line of supporting Broadbent rather than Lewis and Mackenzie, for he gives us a chart showing the effect of digitalis on the pulse-rate in six cases of rapid regular cardiac action with normal rhythm, the pulse-rate falling from 125 before digitalis was given to from 80 to 90 after digitalis was used, and he points out that the effects of the slowing of the heart were distinctly beneficial.

After all the question largely comes down to this, namely, that the physician meets with three types of cases: (1) Auricular fibrillation in which digitalis of course does great good; (2) cases of rapid heart, which may be regular or irregular, in which digitalis fails to do good because the condition of the heart muscle is such that it is beyond its influence; and (3) a very large class of cases, described by Broadbent as already quoted, in which digitalis proves to be as useful as morphine is in the relief of pain. We are glad to note that Sutherland even goes a step further than this and expresses the belief that in the rapid heart of intoxication due to an infection, digitalis does slow the ventricular rate provided there is a sufficiency of sound contractile tissue in the ventricle upon which the drug may exercise its beneficial influence.

There is another point of interest at present, namely, that the younger school of medical men are bringing forward as new the view that a single dose, or a few very large doses, of digitalis is the best way in which to give the drug in severe cardiac disease. This practice has been common with the English since the drug was introduced, namely, to give large doses for three days and then stop. The novel part of the matter to-day is that very unusually large doses are advocated, that is, several drachms not repeated or at long intervals.

In the *American Journal of the Medical Sciences* for January, 1920, Robinson writes an important paper on this subject from which we quote as follows:

"It is this rapid and uniform rate of action of the drug when administered in large single doses, which especially commends the use of digitalis in this manner therapeutically. It is felt that further studies are required before such large doses as were given should be recommended for general use, especially when patients are not under constant observation in hospitals. But the method has been sufficiently tried so that it seems entirely justified whenever rapid digitalis action is strongly indicated, and our experience leads us to believe that it is a much safer method of obtaining rapid digitalis action than the intravenous administration of digitalis bodies, especially strophanthin. Nearly all the cases reported in this series showed very striking clinical improvement within a few hours after the administration of the single large doses of the tincture of digitalis.

"A series of 26 cases of auricular fibrillation or flutter is reported, to which large single doses of the tincture of digitalis

were administered by mouth. The drug used was standardized and was usually given in doses ranging from 15 to 25 Cc.

"The study of these cases demonstrates that such doses of digitalis affect the heart of cases of auricular fibrillation or flutter at a relatively constant time after administration, in from two to five hours, indicating that the drug is absorbed from the alimentary tract at a fairly rapid and uniform rate. The series of cases also demonstrates that the maximum effect on the heart is usually obtained in about twenty-four hours, and generally continues to be effectual for from four to fifteen days, or on an average of nearly ten days."

THE TREATMENT OF PULMONARY GANGRENE.

This very grave condition, which has in the past certainly been regarded as being practically hopeless, has had its incidence considerably increased by the recent influenza epidemic, with its associated micro-organisms, and in Europe by the conditions inseparable from war. It has been considered a condition in which drugs could be of little value and in which surgical interference must of necessity fail or be contraindicated in a large proportion of cases. For this reason we have noted with very considerable interest a communication to *La Presse Médicale* by Perrin, who well recognizes the gravity of the disease and who in the beginning of his paper discusses the various measures which have been used for its relief or cure. He reminds us that steam ladened with oil of turpentine, or eucalyptol, has been recommended at least as a palliative when taken by inhalation. So, too, solutions of carbolic acid and creosote have been employed. Other clinicians have advised the free inhalation of oxygen-gas, and turpentine, terpine hydrate and hyposulphite of soda have been given with the idea that they be inhaled by the patient and exercise an advantageous local influence. As a matter of fact all of these remedies have proved to be disappointing, although their effects may have been somewhat advantageous.

In regard to the surgical measures which have been resorted to, Simon has reported at least two cases in which recovery took place after the operation of pneumotomy and drainage. Weil and others have reported successes following the induction of artificial pneumothorax in place of the mutilating operation which pneumotomy involves. That the induction of artificial pneumothorax has some basis for its employment will find support in the well-recognized fact that good results have followed its use in pulmonary tuberculosis with cavity formation, and Perrin speaks of cases in which artificial pneumothorax has seemed to produce a cure two or three weeks after it was instituted, which is certainly most encouraging if true. The same contraindications to the employment of artificial pneumothorax of course exist in these cases as exist in pulmonary tuberculosis; with regard to the condition of the opposite lung and with regard to the presence of adhesions.

The point which Perrin chiefly wishes to emphasize is the employment of arsphenamine administered intravenously, particularly if an examination of the sputum shows the presence of the spirillum of Vincent.

In the epidemic of influenza of 1918 the writer of this editorial saw a number of cases of severe pulmonary involvement in which these spirilli seemed to be the dominant factor and in which arsphenamine seemed to be a life-saving remedy.

Perrin quotes a considerable number of French observers who have employed this drug with advantage whenever the spirilli have been present either in the mouth or in erosive balanitis, or in the gangrene of the external female genitals. These studies led Perrin to employ neoarsphenamine in pulmonary gangrene, and he tells us that as long ago as 1913 he employed this drug with advantage in a case of pulmonary gangrene associated with tuberculosis, in which case, however, the spirillum was present.

He now reports the case of a girl of eighteen years suffering from right-sided gangrene due to the spirilli associated with the bacillus tuberculosis, who had been treated by injections of eucalyptol in oil for the tuberculous lesion. These injections failing to give much relief, the patient was given 0.45 of neoarsphenamine, when almost immediately amelioration was manifested; the temperature fell, the expectoration was less abundant and less evil in odor. The second injection was given one week after the first, and the spirilli disappeared from the sputum three days later. Six months later the tuberculous process was, however, practically stationary.

In the case of a man of forty-one years who developed pulmonary gangrene apparently as a result of contusions of the chest, although he had the signs of acute pulmonary disease which were supposed to be due to influenzal pneumonia, a somewhat similar treatment was carried out, when pulmonary gangrene developed. The odor of the sputum was intolerable, and the signs of cavity formation were notable. The urine contained traces of albumin, but this was not considered a contraindication to the use of the arsenical. The first dose given, however, was 0.15. The doses were then repeated every other day or every third day, and later 0.6 was given on the seventh, ninth, and thirteenth days. After the first injection the patient seemed to be materially benefited, the albumin disappeared from the urine, the temperature fell, and the physical signs were better. On the twenty-second day after the last injection of a dose of 0.6 the patient had a moderate hemoptysis lasting for forty-eight hours. This was not allowed to interfere with the treatment, which resulted finally in practically stopping the expectoration, so that by the fifth week it could be said to be eliminated from the case, and in the sixth week what little remained was moderate muco-pus. The patient was discharged at the end of two months.

In still another case, that of a soldier who had been gassed, the treatment was instituted with marked benefit.

Perrin therefore strongly advocates the use of neoarsphenamine, or arsphenamine itself, as being probably the best treatment which can be resorted to in pulmonary gangrene, provided spirilli are found in the sputum.

SHALL HEROIN BE DISCARDED?

Readers of the THERAPEUTIC GAZETTE may not be aware that for some time a number of persons interested in the subject of drug addiction have been pushing the idea that as heroin is a habit-producing drug its use should not only be controlled as it now is by the terms of the Harrison Act, but that Congress should go one step further and forbid its manufacture or importation.

Very wisely the United States Public Health Service has sent out inquiries as to whether this is the general opinion amongst medical men. Our own view, as already communicated to the Surgeon-General of the Public Health Service in Washington, is that no action should be taken along the lines mentioned above.

It has not been our experience that morphine, as suggested, can be substituted in every case for heroin with equally good results. Heroin, when properly used, is an excellent remedy for the control of excessive cough in pulmonary tuberculosis and bronchitis, as well as in other respiratory affections, and it is also efficient in the relief of certain kinds of pain.

At the present time it has been deemed proper to deprive the medical profession of alcohol in the form of spirits or wines in the treatment of disease. It is true that under certain regulations physicians for the time being can obtain alcoholic preparations for medicinal purposes, but the law forbids their manufacture and importation, which is equivalent to stating that in a short time they will be no longer obtainable.

It is not our intention to debate the question as to whether the prohibition act, so

far as it affects the practice of medicine, is wise or unwise. It is mentioned in this connection because it has seemed to us that the time has come when the profession should be watchful that in the endeavor to limit the use of habit-forming drugs, patients who need and deserve their advantages shall not be deprived of them. There is no danger from the promiscuous use of heroin as there is from alcohol. The provisions of the Harrison Act, if enforced, are quite sufficient to cut down the number of addicts to a minimum. To pass any legislation forbidding the manufacture and importation of heroin would mean that in depriving a comparatively few perverts, or addicts, of a drug which might increase their perversion, a host of persons suffering from disease will be deprived of its advantages.

We think our readers will agree with us that in our combat with disease and suffering our armamentarium for the relief of pain is even now all too small. Possibly some of our readers will care to write to the Surgeon-General of the United States Public Health Service in Washington expressing their views.

CARBOLIC ACID AS A POISON.

Many years ago we pointed out in the pages of the GAZETTE that the laws in regard to the dispensing of carbolic acid were too lax in view of its well-known lethal properties. In many instances other drugs which are far less poisonous are surrounded by rules or regulations which prevent their being obtained by those who wish to commit suicide or to put others out of the way. Lawmakers seemed to have ignored the fact that carbolic acid when taken in large quantities may produce death with rapidity almost equal to that of hydrocyanic acid, and we well remember that Dr. Horatio C. Wood in his lectures many years ago used to describe the case of a pharmacist on an American man-of-war who drank carbolic acid and died almost at once.

For these reasons we have been interested in a report made to the *California State Journal of Medicine* by Taylor, a surgeon in the United States Navy on the flagship *Pensacola*. He reports the case of a man of twenty-two, a nurse by occupation, who was engaged with two others in arranging bottles of medicine on the shelves of the ship's dispensary. While his associates turned from him for a moment, which Dr. Taylor says was not in excess of a period of ten seconds, the patient fell. When seen by the surgeons of the ship in about one or two minutes after the poison had been swallowed the man was totally insensible and pulseless, the pupils were dilated, respirations gasping, and there had been an involuntary discharge of urine. Death occurred in a very few minutes. The respirations continued for several seconds after the heart ceased. There were no convulsions or vomiting, and the illness was so brief that no method of combating it could be instituted. Not more than three minutes elapsed between the ingestion of the poison and the end. The presumption is that the bottle was mistaken for one containing alcohol or some alcoholic liquor.

The case reported by Dr. Taylor emphasizes the fact just mentioned, and well known by those familiar with toxicology, that carbolic acid is one of the most dangerous poisons known to man.

ON THE NATURE OF RABIES AND ANTIRABIC TREATMENT.

With the clear recognition that there is an efficient control of rabies the profession has ceased to be largely interested in this subject, and the population at large has lost that horror of a dog exhibiting unusual actions, particularly those of a violent nature, by which it was at one time obsessed.

By laboratory methods the diagnosis of rabies is now an assured one in so far as the dog is concerned; providing he can be secured for observation and autopsy. In this country at least the means of assured cure are available to every one.

Semple (*British Medical Journal*, Sept.

20, 1919), late Director of the Pasteur Institute of India, and late Director-General of the Public Health Department of Egypt, urges that a patient bitten by a rabid animal should not wait an hour before beginning treatment unless this is unavoidable; since if the virus succeeds in reaching the nerve centers before immunity is conferred, no treatment yet devised will save the patient.

The serum used for antirabic treatment is prepared from the brain or the spinal cord of animals which have died from rabies after inoculation with "fixed" rabies virus.

The virus, being of a fixed virulence, may be termed a "vaccine" when prepared for use; but the method of preparation varies in different Pasteur institutes. Pasteur dried the spinal cords in jars, having in them caustic potash or soda, under fixed conditions as to time, temperature, humidity of the atmosphere, and the exclusion of light. A cord thus treated in fourteen days has lost all its virulence. Attenuation begins after the third day of drying and is completed from the twelfth to the fourteenth day. From the cords thus treated a series of emulsions have been prepared, differing in strength in accordance with the period of drying. The first injection is from the cord dried fourteen days, then progressively from cords dried a lesser period of time, until finally those are used that have been dried only for three days. Thus is established a degree of immunity sufficient to resist the injection of living and virulent virus.

The dose for an adult consists of 1 cm. of cord finely ground down in 3 Cc. of a sterile fluid such as normal saline solution, and injected into the subcutaneous tissue on the side of the abdomen; it corresponds to about a 5-per-cent cord emulsion and is known as the "dried cord method" of treatment.

By the "dilution method" a beginning is made by making a 1-per-cent solution of virus from the fresh cord or the medulla, this acting as a stock solution. The first injection is 1 in 10,000, gradually increasing from day to day to a less diluted virus, such as 1 in 500, 1 in 200, or even a 1-per-cent dilution. This method has been adopted by several antirabic institutes. It is easier and less expensive than the dried cord method.

In some institutes the use of the antirabic serum prepared by immunizing sheep or horses has been employed either as a preliminary to the usual antirabic treatment or to sensitize the living vaccine. In the preparation of vaccine carbolic acid is the method which produces the least change and interferes less with its keeping properties. A 1-per-cent dilution of rabies virus in a one-half-per-cent carbolic acid normal saline solution remains living and virulent for about twenty days at room temperature, and is not killed in twenty-four hours at 37°C.

In a country where rabies is prevalent the advantages of a system by which bacterial vaccine may be supplied are obvious. The proof of its efficiency has been established in India. At the Pasteur Institute of that country, Kasauli between the years 1912 and 1916 treated something over 22,000 persons by carbolized vaccine. The percentage of failures was 0.68.

These results compare most favorably with those obtained by any other method of antirabic treatment. At the Pasteur Institute, Paris, between the years 1886 and 1918 a total of 39,721 persons received dried cord treatment, with 0.39 per cent failures. Those who contract hydrophobia during treatment, or within the period of fifteen days of the last inoculation, are not reckoned as failures of treatment owing to the fact that their nerve centers became invaded by the virus of the biting animal before treatment was completed and immunity established.

Persons receiving antirabic treatment are inoculated daily, and for a period of from fifteen to eighteen or twenty-one days, according as to whether light, medium, or intensive treatment is considered necessary. Efficient treatment is now being carried out in England with carbolized antirabic vaccine prepared at the laboratories of the

Ministry of Health and sent out to the centers where treatment is given.

In this relation it is interesting to note that there has been a recent outbreak of rabies in England and that Stockman reported that rabies was distinctly eradicated in 1902; it was reintroduced by importing infected dogs and letting them loose. He holds that the basic principle of excluding rabies is to impose upon imported dogs a method of observation and quarantine sufficiently thorough and lasting to cover the latent period of the disease. For sixteen years thus was prevented a reintroduction of rabies. During the war the preventive measures bearing upon importation broke down. From August to last December there were in all 112 cases. Most of the cases were of the paralytic form, which greatly curtailed their wanderings and their ability to bite. By improved laboratory methods it became possible to give a definite diagnosis in as short a time as five hours after the receipt of material, as compared with fourteen to thirty days in former outbreaks. Twenty-one persons were sent for treatment, without any deaths.

A further article on this question by Semple (*British Medical Journal,* Sept. 13, 1919) points out that prevention is easy and assured; cure of the developed disease impossible. He would have the profession use the term rabies as applied to animals and men and discontinue the use of the term hydrophobia as applied to the condition in man. All warm-blooded animals are susceptible to rabies. In 99 cases out of 100 the affected animals are dogs, but sheep, cats, horses, cattle, foxes, bears, and pigs are also attacked. Wolves keep up the disease in some parts of Russia, and jackals and other wild animals in India. The saliva of men or animals suffering from rabies contains the infective agent; the virus cannot become active through the unbroken skin, but infection may take place through the mucosa injured or uninjured.

The brain, medulla, spinal cord, cerebrospinal fluid, and large nerves of man and animals suffering from rabies contain the infection in considerable intensity. Inoculations of the blood of infected animals result negatively. There seems to be reason to believe that placental transmission can occur.

The saliva of the dog may be infected for as long as five or even seven days before he shows any symptoms of rabies. These are points which should be considered in giving antirabic treatment to persons bitten, or licked on scratches or abrasions by dogs apparently healthy at the time, but which later develop symptoms of rabies. The term "virus" is used as a convenient term in connection with the disease-producing material, about which we know little or nothing. We do know it is sensitive to heat, a temperature of 50° being sufficient to destroy it in fifteen minutes. It can be frozen and remains active for months in neutral glycerin. The usual bactericides injure it.

Passed into a series of rabbits the rabic virus becomes increasingly virulent up to a certain point and there remains. This is Pasteur's fixed virus. When passed through a series of monkeys it diminishes in virulence. It is a filter-passing virus, excepting to very fine porcelain filters; the Berkefeld or filters of medium porosity allow passage through them. It has not been grown on artificial media or seen beneath the microscope.

The status of the "Negri bodies" found in the brain and medulla has not been established; that is, in relation to cause and effect. They are present in probably 95 per cent of rabid dogs. They are not found in the salivary glands or saliva. They are as a rule too large to pass through a Berkefeld filter. When found in association with clinical symptoms they are diagnostic, although they are not regarded as specific.

In dogs rabies appears in the furious or the dumb form. They all ultimately perish from paralysis, exhaustion, and asphyxia.

The dumb form because the animal is unable to swallow, dribbles from his mouth and is paretic, often suggesting the presence of a bone in the throat, in the search for which many people have scratched their

hands and therefore have received an inoculation. The implanted virus reaches the nerve centers by growing along the nerves from the seat of infection. If the virus reaches the nerve centers before the treatment is completed, treatment is of no avail. On reaching the nerve centers a period of fourteen days or thereabouts elapses before the first symptoms set in.

Antirabic treatment has for its end the securing of active immunity against rabies before the virus of the animal which inflicted the bite reaches the nerve centers. If this has been accomplished there will be no failures. If the virus has reached the nerve center by the time the patient arrives for treatment or before it is completed there will be no immediate symptoms to show that this has taken place, but hydrophobia will set in fourteen days afterwards, irrespective of whether he receives treatment or not.

Local treatment should supplement the antirabic treatment. The wound should be cauterized at the earliest possible moment, and undiluted carbolic acid is most efficient and least painful. Cauterization when thoroughly carried out within half an hour of the infliction of the bite will prevent hydrophobia in many cases, though not in all. It is probably not of service after three or four hours. Cauterization is better than excision. In any rabies-infected area or country bites from apparently healthy dogs should receive the same local treatment as laid down for the bites from rabid dogs for the reasons above indicated. The dog should be kept and watched for at least ten days. Even should it develop rabies after this period a person is safe since the dog is not capable of carrying the infection at the time of the bite. If a dog shows signs of rabies within ten days of inflicting the bite, the person bitten should receive antirabic treatment as soon as possible after the condition of the dog has declared itself.

If the bites are on the head, face or neck it suggests the beginning of antirabic treatment at once, stopping it when it is proven that the dog was not rabid. The bite of a street dog which afterward disappears suggests the antirabic treatment, in the region where rabies exists. The earliest period at which a man or animal bitten by a rabid animal could show any symptoms of hydrophobia or rabies would be fourteen days after being bitten. There is always a period of incubation spent by the virus in multiplying until it reaches the nerve centers. It seems to manifest itself oftenest after the second or third month following infection; less frequently after the third month; and rarely after the sixth month. The nearer to the brain the wounds are situated, the shorter the incubation period. Multiple and deep bites through the exposed skin on other parts of the body where nerves are numerous may have an incubation period not much longer than a similar class of wounds on the head and neck.

When the bites are slight, and only a small amount of virus implanted in the wounds, the incubation period may be prolonged up to five, six, or even nine months.

When the bites are inflicted through the exposed skin, and are severe and multiple, especially on the head and face or neck, the percentage of infections will be very high; possibly 60 per cent or more. Bites on the same localities, but single and slight, will give rise to a much lower percentage of infections, and bites through the clothing (unless very severe and the animal has held on and bitten savagely) will give a lower percentage still, and may not be over 16 per cent.

The symptoms are as a rule typical, though at times the disease approximates the paralytic form as seen in animals. There are a few early symptoms which are practically never absent, namely, an increase of temperature, a feeling of unrest, an appearance of excitement about the eyes and face, and, most diagnostic of all, inability to swallow fluids. At this stage patients may ask why they are unable to swallow, stating at the same time that they are feeling quite well.

In most cases of hydrophobia, toward the end of the disease, getting rid of the

ropy saliva from the mouth and throat is a troublesome symptom, and attendants on patients should be warned about its infectivity. It gets on to the patient's hands; when in a paroxysm he may scratch his attendants; or cough or expectorate on to their faces. These are possible methods of infection which would suggest themselves to any medical man attending a case.

CONCERNING THE TRAINING OF THE BLINDED.

It will be remembered that in the beginning of the war predictions were made that there would be a large number of blinded. Studies were inaugurated and tentative provisions were formulated by means of which the confidently expected thousands might be properly received and cared for. That the thousands are numbered by hundreds is a source of deep satisfaction. That these hundreds should be receiving the highly intelligent, skilful, sympathetic and fruitful care as described by de Schweinitz (*New York State Journal of Medicine,* September, 1919) is a source of both satisfaction and pride.

De Schweinitz observes that success in training the blinded depends upon a number of factors. Primarily, those who are blind must not be classified as "unfortunates," and blindness must not be defined as an "affliction"; at most it is a handicap, the weight of which can be steadily diminished by suitable educational methods. The blinded must not be allowed to acquire patient acquiescence nor slip into sullen despair; they must not be permitted to lose their initiative, or having lost it, they must be taught how to regain it; they must be insistently instructed in the sense of self-dependence; they must be made to realize that although the main channel to their visual centers is blocked, to quote, even if not verbatim, Sir James Crichton Browne, "many other inlets remain open, which by educational engineering may be utilized, widened, extended, multiplied, enabling this visual center to perform its associative if not its primary functions;" they must employ the power of substitution, not acknowledging that they do not see, but only that they do not see with their eyes. Thus they are not banished from the state of being normal, and the test-word in the vocabulary of this important educational problem, as Sir Arthur Pearson would say, is normality.

Including among the blinded of the present war not only those whose sight has been entirely destroyed, but also those in whom the degradation of visual power has been reduced below 1/20 of normal—"the near blind," as they are called—a reduction of vision which would seem to preclude their access to wage-earning occupations depending upon the possession of satisfactory sight in the absence of education and training which is designed to neutralize the handicap; the blinded of all the Allies will total about 6000: in England and her colonies about 2000, in France about 3000, and among our own forces approximately 200, not more than 100 being totally blind as the result of war wounds. These figures are necessarily subject to correction when more accurate statistical information shall become available.

The various causes of blindness and "near blindness" may be classified thus: (1) Direct injuries and war wounds of the eyes; (2) intracranial injuries which have destroyed the visual centers and pathways; (3) diseases of the eyes—for example, metastatic ophthalmitis in association with pneumonia and influenza. Contrary to a common belief, comparatively few cases of total blindness dependent upon poisonous gases, for instance, dichlorethyl sulphide (mustard gas), used in the operations of chemical warfare, have occurred.

De Schweinitz takes as his model St. Dunstan's, with its inspired chief, commenting particularly upon Sir Arthur's insistence upon maintaining the morale by at once having those who were blinded visited by some one from the hospital who "had themselves learned to tread the dark valley and who spoke to them of hope and

achievement." The reëducation training at St. Dunstan's is based on the classroom, the workshop, the recreation centers, and the follow-up system after the man has been placed in the wage-earning occupation.

To avoid mental strain and weariness in classroom work, the hours are only from 9:30 A.M. to 12 M., and from 2:30 to 4:30 P.M., and those who are occupied with classroom lessons in the morning are detailed to the workshop in the afternoon, and *vice versa*. In the classrooms the men are taught to read Braille, and also, with the necessary machine, to write it, and are all required to learn to operate a typewriter. It is pointed out that the success of a blinded capable teacher with blinded pupils is in most instances far superior to that of a sighted teacher for the simple reason that not only is the sightless man taught the trade or lesson, but he has the added inspiration of knowing that he who teaches has succeeded and has conquered his handicap.

De Schweinitz's years of association with the Pennsylvania Institution for the Instruction of the Blind, his familiarity with the reconstruction education there carried on, together with his knowledge of the morale of St. Dunstan's, peculiarly fit him for the important work he has taken upon himself as a consultant to the Red Cross Hospital, known as Evergreen, dedicated now to the care of those blinded in war; it is hoped, for all time to the care of those blinded in industries other than that of war.

REPORTS ON THERAPEUTIC PROGRESS.

THE TYRANNY OF THE WASSERMANN TEST.

LISSER, in the *Journal of Cutaneous Diseases* for November, 1919, presents a point in this matter which deserves consideration, namely, the psychologic effect on the patient. For the proper education of the laity it has been a necessary and, for the most part, a wise procedure to give considerable publicity to the importance of "the blood test." The results have not always been beneficial. "A little knowledge is a dangerous thing," and this axiom has been abundantly exemplified in the patient's interpretation of Wassermann test reports. Occasionally after treatment has been in progress for a few months the patient will request a Wassermann test "to see how I am getting along." The physician's rejoinder, that whatever the result treatment will have to be continued for a long time, does not shake the patient's determination to have a Wassermann test. Sometimes the test is negative, sometimes strongly positive. If the result be negative, the patient is unduly encouraged, and often becomes so elated that he insists that he is cured and requires no further treatment; after lengthy explanations by his physician he continues treatment, but with a lurking suspicion that treatment is being unduly prolonged. If the Wassermann reaction be strongly positive, he is plunged into gloom and believes that he will never be cured, or that the treatment he is receiving is not of the best and that he had better consult another physician.

When the Wassermann reaction remains persistently uninfluenced by treatment, even after fifteen or twenty salvarsan injections and several courses of mercury salicylate injections, the patient and the physician both become profoundly discouraged. A report on a piece of paper from the laboratory will shake all confidence in clinical success. The patient may be in the best of health, show absolutely no signs or symptoms of the disease, and have had thorough treatment for three years or more, but the Wassermann report will overshadow all such considerations and insistently call for more and more treatment until the treatment is far worse than any symptoms from which the patient has suffered. The mental

and emotional depression consequent on this faith in the infallibility of the Wassermann test exerts a sinister influence on the patient's daily life.

Thousands on thousands of patients were cured of syphilis for all practical purposes and lived to a reasonable age before the Wassermann test was devised. Probably most of them would have shown positive Wassermann reactions with the delicate, sensitive methods of to-day. This is no criticism of the hypothesis that clinical cure depends on serologic cure. He admits that clinical judgment is by no means accurate, and that an arbitrary rule that syphilis requires two or three or four years' treatment is but a crude method of controlling the disease, but this is no excuse for permitting ourselves to be deceived by a false sense of security in the Wassermann test. Too implicit faith in the sensitive Wassermann test is fast driving us into an excess of treatment—for as Wile aptly remarks, to attempt to convert positive into negative Wassermanns is, in the majority of cases, "chasing a shadow."

His conclusions are:

1. A strongly or definitely positive Wassermann reaction is undoubted evidence of syphilis.

2. It is an invaluable aid in the diagnosis of syphilis, especially in those cases in which physical diagnosis does not reveal positive evidence of the disease.

3. A negative Wassermann means exactly nothing. (*a*) It does not prove the absence of syphilis, because negative tests occur in cases urgently requiring treatment. (*b*) Therefore it cannot denote a cure in treated cases.

4. A positive Wassermann reaction means syphilis, but not necessarily active syphilis.

5. Once the diagnosis of syphilis (after the primary stage) is established, the patient should be properly treated from two to four years, depending on the stage of the disease and the severity of the lesions.

6. Treatment should be entirely independent of the Wassermann reaction because negative Wassermann reactions sometimes occur prematurely during treatment, while positive Wassermann reactions frequently persist long after clinical cure.

7. Once the diagnosis of syphilis is positively established, the fewer Wassermann tests done the better, both for the peace of mind of the patient and the physician.

8. The Wassermann test should be employed as an aid to clinical judgment, but not to supplant clinical common sense.

VALUE OF VACCINES IN INFLUENZA.

Under "Reports of Societies," the *British Medical Journal* of October 18, 1919, gives a note by GREY on compulsory inoculation against Spanish influenza, which had been received from Surgeon Captain E. T. P. Eames, R. N., Director of Naval Medical Services in Australia. The writer was in charge of an expedition sent to combat an epidemic in British Samoa, where he had an opportunity of witnessing the behavior of the disease on virgin soil. The full dose of the vaccine used by him contained 125 millions of micrococcus catarrhalis, and 50 millions each of pneumococcus, streptococcus, and Gram-positive diplococcus. His experience showed Pfeiffer's bacillus to be unnecessary as a constituent of a vaccine directed against the epidemic. Immunity begins to "peter out" after the fifth week, and he gave a full dose (50 millions each pneumococcus and streptococcus) every five or six weeks. Only the mildest reaction was observed. He did not inoculate children or the old, unless requested, as they appeared to have relative immunity.

He recommends compulsory inoculation on the first signs of the appearance of epidemic influenza, and that the inoculation should be repeated every month or six weeks. He claims that this will decrease the incidence of the disease, mitigate its severity, and reduce the mortality to a low figure. He advances the following evidence:

1. The entire ship's company of the man-o'-war which took his expedition to the islands was inoculated. Communication with the shore at the various ports was, as far

as possible, avoided, but this ideal was not entirely attained. Not one case developed.

The ship returned to Australia in February, 1919, and in the middle of March an epidemic broke out, producing by the end of the month about 100 cases, without any deaths. He considers that this is evidence that inoculations made at the end of November and end of December gave immunity up to the middle of March and rendered the disease when it broke out nonfatal.

2. Every member of his expedition was inoculated at least four times in three months. Not a single case developed, although the risk of infection was no small one, when it is remembered that in Samoa alone one-fifth of the entire population was wiped out by the scourge. Two officers had an illness of four to five days not as severe as the so-called influenza of normal times.

3. An interesting experiment to test the efficacy of the vaccine was provided by the Governor of American Samoa, who sent, against the wishes of British Samoa, forty natives from Pago Pago (a clean port) to Apia during the progress of the epidemic. These were isolated, inoculated, and not released until judged to be in a positive phase. Not one contracted the disease, and the Secretary of Native Affairs, who knew their names and villages, reported all clear after a lapse of one month.

4. Ship's company and passengers of the steamer which brought the expedition from Suva to Sydney were inoculated without exception. They anchored in quarantine in Sydney, and on the second day a case was taken ashore. They remained on board, quarantined another week. Although the ship was very overcrowded, not another case developed.

5. The naval depot at Williamstown contains a floating population of about five hundred, half of whom live on shore, and the rest, of course, have a fair amount of shore leave. All hands were inoculated twice in the last three months. Down to March there had been only fifteen cases, all mild except two, and no deaths. In March an influenza epidemic broke out in the naval depot, characterized by high infectivity, extraordinary mildness, and an average age incidence of 18.5; it caused 100 cases within a fortnight, but it was not clear that it was true influenza.

THE DIAGNOSIS OF HYPERTHYROIDISM BY ALIMENTARY HYPERGLYCEMIA.

McCaskey, in the *New York Medical Journal* of October 11, 1919, states these conclusions:

1. That alimentary hyperglycemia following 100 grammes of glucose is present in probably every case of thyrotoxicosis.

2. That it is rarely, if ever, present at the end of the first hour in normal persons, although it may have occurred at the end of about thirty minutes.

3. Its presence, therefore, in one hour, and especially in two hours, always indicates abnormal carbohydrate metabolism unless gastrointestinal function is delayed.

4. It occurs in latent, and of course in manifest, diabetes, in alcoholism, malignant disease, arthritis, and very probably in a considerable number of infections, acute, subacute, or chronic, in the same category with arthritis.

5. Before attaching a positive diagnostic value to alimentary hyperglycemia in suspected hyperthyroidism, these conditions and possibly others of which we are now learning must be excluded.

6. While its positive value can only be considered corroborative, its negative value in excluding hyperthyroidism is very great and probably exceeds ninety per cent.

7. In hyperthyroidism there is no constant direct ratio between its intensity and the height of the alimentary hyperglycemia, although in general the blood-sugar values in severe cases are high.

8. Too much importance should not be attached to alimentary blood-sugar values below 140 mgm. of sugar in 100 Cc. of blood, although sharp lines of demarcation cannot yet be drawn.

THE FUNCTIONS OF THE INTERNAL SECRETION OF THE PLACENTA.

HAMMETT, in *Endocrinology* for July-September, 1919, states that during the winter of 1917-1918 he carried on a series of experiments at the Boston Lying-in Hospital with the view of determining whether or not the maternal ingestion of desiccated placenta, as prepared according to his earlier report, would cause an appreciable difference in the rate of growth of the breast-fed infants when compared with that observed in normal breast-fed infants. The data for the normal growth curves were obtained from the weights of 537 infants born at the Boston Lying-in Hospital, taken on the first, third, fifth, seventh, ninth, eleventh, and thirteenth days after delivery. Figures were taken only from those infants whose sole nourishment was derived from the maternal breast. Having thus obtained a standard based on the methods of weighing, care, and diet in use at that hospital, and which was necessary for any valid investigation of this nature, every patient was given 10 grains of the desiccated placenta in a capsule three times a day for two weeks, until a sufficient number of observations had been made to give valid indications. The conditions as to diet, weighing, and so forth were the same as obtained with the cases in which no placenta was fed. The growth curves of 177 infants were obtained from the weights of the infants on the first, third, fifth, seventh, ninth, eleventh, and thirteenth days after delivery. As a result of this investigation it was determined that the effect of the ingestion of desiccated placenta by the mothers on the growth of the breast-fed infants is a lessened postnatal decline in weight, a quickened recovery from the preliminary loss, an increase of over 60 per cent in the rate of growth by the thirteenth day, and an increase in the growth capacity when compared with similar figures obtained from infants receiving nourishment from others not ingesting the desiccated placenta. In view of these facts, and having in addition evidence that the increased food value of the milk produced during the administration of the dried placenta cannot of itself compensate for the increased growth, and, moreover, since but 30 grains, or less than a gramme, of the dried material was fed each day, a quantity so small as to be negligible as matter from which new tissue can be built, it is evident that there is produced in the placenta some substance capable of acting as a stimulus to growth. This is ingested by the mother and passed on to the infant in the lacteal secretion, and it is not illogical to suppose that the placenta *in utero* produces a substance acting as a stimulus to the fetal growth.

The evidence now available concerning the functions of the internal secretion of the placenta eliminates the probability of the participation of such a substance in the production of eclampsia, in the hyperplasia of the mammary glands, from a quantity point of view. The feeding of desiccated placenta to nursing mothers does affect slightly the chemical composition of the milk produced, but not significantly. It is, however, certain that there is in the placenta a substance which, when fed to nursing mothers, is passed on in the milk to the infants and acts as a stimulus to growth, and it is this and this alone that permits the designation of the placenta as an endocrine gland.

TREATMENT OF GASTRIC AND DUODENAL ULCER.

KNIGHTON, in the *New Orleans Medical and Surgical Journal* for December, 1919, in concluding his article lays emphasis on the following points:

1. There are cases of gastric and duodenal ulcer that may be cured by medical treatment.

2. There are other cases that are purely surgical conditions, and valuable time should not be wasted in attempting to treat them otherwise.

3. The essential elements in the non-surgical treatment of ulcer are rest in bed, frequent feedings, and neutralization of the free hydrochloric acid by means of alkalies.

MERCURIAL POISONING.

ALBAUGH, in *Modern Medicine* for November, 1919, states that mercurial poisoning occurs frequently in certain trades, particularly in the preparation of mercurial salts and in the felt-hat industry. The disease usually assumes a chronic form and is caused by the frequent inhalation of small quantities of vapor. It is said, also, that inhalation of dust containing mercury will produce the disease.

Although mercury boils at 360° C., it volatilizes at room temperature. It is for this reason that it is important as a source of industrial poisoning. Many compounds of mercury, particularly the oxides, are used industrially and cause mercurial poisoning.

Symptoms.—The symptoms of industrial mercurial poisoning are not unlike the symptoms of mercurialism from therapeutically administered mercury. There is usually a marked increase in the flow of saliva, with foul breath and a metallic taste in the mouth. There may be a simple inflammatory condition of the gums, or it may go on to ulceration with loosening of the teeth. The more important symptoms, however, are the psychoses and nervous afflictions, which are usually accompanied by digestive derangements and loss of strength. Patients frequently exhibit a marked tremor before other symptoms manifest themselves. It is not unusual after long-continued exposure or repeated attacks of poisoning for the patient to become emaciated, with anemia, loss of strength, muscular atrophy, and disturbed digestion. Such cases may result fatally. Slight cases of mercurialism usually recover, however, if the patient is removed from the influence of the poison.

Prevention of mercurial poisoning depends upon the confinement or removal of mercurial vapor and mercury dust as well as strict personal hygiene, particularly proper care of the mouth. In the hatters and furriers trades the danger arises chiefly in cutting, dressing, drying, sorting, and in the subsequent stages of felt-hat manufacture. The prohibition of entry into drying rooms while drying is going on and the removal of vapors and dust at the points of origin are important. The treatment of mercurial poisoning is symptomatic. Patients should be removed from exposure with the first symptoms. Potassium chlorate mouth-wash may be used for the inflammatory condition of the mucous membrane. Effort should be made to promote the general condition by strengthening food. Baths and electricity should be resorted to for the nervous symptoms.

DIABETES MELLITUS—RÉSUMÉ AND PHILOSOPHICAL DON'TS.

DENSTEN, in the *New York Medical Journal* of October 11, 1919, says:

Don't disturb the regimen of a diabetic by absolute withdrawal of the carbohydrates.

Don't treat too strenuously a diabetic passing less than two per cent of sugar.

Don't pronounce to be diabetes mellitus every case in which sugar presents itself in the urine. There are pseudo-diabetics, passing sugar to-day and none to-morrow, and often alternating with albumin.

Don't fail to add alcohol in some form to the daily regimen of a diabetic who continues to pass over two per cent of sugar or continues to lose weight.

Don't fail to push the specific remedies indicated, when the cause has been discovered, and don't pay too much attention to curing the diabetic complications. When the cause has been removed or cured, the effect or symptoms will cease.

Don't think to benefit permanently a diabetic by diagnosing and treating the microscopic evidences as a disease *per se*. The etiology always lies beyond somatic and microscopic evidence. Microscopy will in the majority of cases make your diagnosis secure and the etiology plain.

Don't attempt the practice of medicine without a working knowledge of the microscope. Without such knowledge a medical practitioner must depend too much on

guesswork. It is the positiveness of one's diagnosis which alone renders positive treatment available and insures successful cures by the application of positive therapy.

Don't fail to support the musculature of a diabetic, and especially the heart. Strychnine sulphate (notwithstanding the contradictions of many) will be found sufficient, but must be administered in large doses. Not less ever to an adult than one-twentieth of a grain three times a day. Strychnine is not cumulative. Its physiological maximum effect is reached two hours after administration and may be continued for months.

Don't forget that diabetes mellitus may be the result of congenital as well as acquired syphilis.

TREATMENT OF PERITONITIS.

CRILE, in the *Journal of the American Medical Association* of November 29, 1919, states that the essential points in the anociated treatment of abdominal infections are:

1. Nitrous oxide-oxygen.
2. Anesthetized incision.
3. Accurate, clean-cut operation to diminish both infection and shock.
4. Adequate drainage.
5. Fowler's posture.
6. Vast hot packs over the entire abdomen, spreading well down over the sides.
7. Five-per-cent sodium bicarbonate, with 5-per-cent glucose by rectal tap, continued as long as it is tolerated.
8. Primary lavage of the stomach, repeated only if indicated. (It will rarely be indicated if anociation is complete).
9. From 2500 to 3000 Cc. of physiological sodium chloride solution administered subcutaneously every twenty-four hours until the period of danger is past.
10. Morphine hypodermically until the respiratory rate is reduced to from 10 to 14 per minute, and held to this rate until danger is past. It should be noted, however, that morphine is not useful in a streptococcus peritonitis.

By employing water, hot packs, and morphine, the surgeon can play the patient almost at will. The control of the drive, as marked by the changes in the respiratory rate in particular, is dramatic. Morphine lowers the respiratory rate, decreases the peristalsis of the intestines, reduces pain, and secures physiological rest and sleep, the prime means of recuperation.

Under this combination of the anociation of peritonitis with the anociated operation, his associate, Dr. Lower, and he have performed 409 consecutive operations for acute appendicitis, with or without generalized peritonitis, without a death.

BLOOD TRANSFUSION IN SUBACUTE SEPSIS.

ZINGHER, in the *Medical Record* of October 4, 1919, states his opinions in this matter as follows:

1. Blood transfusion should be used more extensively on wounded soldiers in the base hospitals.
2. Officers should be especially assigned to this work in the different base hospitals and base hospital centers, whose sole duties would be in connection with the performing of transfusions, consultations on surgical and medical cases, and keeping suitable donors available.
3. The special indications considered are subacute sepsis, associated with extensive suppuration or with infected compound fractures, with anemia and emaciation of varying grades; also as a prophylactic measure in enfeebled individuals before severe operations, and in cases of postoperative surgical shock resulting from extensive loss of blood during an operation.
4. Large pockets of pus, suppurating joints, or extensive empyemata must, of course, be freely incised and drained. No blood transfusion will help in the elimination of these sources of continuous reinfection, unless they are carefully watched for and taken care of as they arise. Autopsies often bring to light such complications, which should have been taken care of while the individual was still alive.
5. The transfusion should be of moder-

ate amounts of blood, from 250 to 300 Cc., and repeated, if necessary, every seven to fourteen days.

6. Systematic efforts should be made to find these patients in the base hospitals. Special studies should be made and careful records kept after the transfusions, so as to obtain as soon as possible tabulated data that will help in more definitely indicating the value of blood transfusion in these cases of subacute sepsis associated with extensive wounds and fractures. [Although the war is over these views nevertheless possess interest to surgeons in civil practice.—ED.]

ACETONURIA AND CYCLIC VOMITING IN CHILDREN.

KERLEY, in the *Archives of Pediatrics* for August, 1919, states that children of a certain constitutional peculiarity, manifested by a rheumatic tendency, and having usually a distinct neurotic inheritance, are very prone to periodic attacks of fever with nausea and vomiting. The physiological defect appears to be a poor fat and carbohydrate metabolism. The proper treatment for the attack itself is an alkaline one, while in the interval a diet low in fats and sugars, combined with careful attention to the usual régime of the child's life, does much to prevent recurrences.

SERUM TREATMENT OF LOBAR PNEUMONIA TYPE I.

THE *Archives of Pediatrics* for August, 1919, states that there is in about 30 per cent of the cases an almost immediate more or less severe chill with a considerable rise of temperature which lasts for a short period. This occurs usually after the first but sometimes after the later serum injections. If the blood contains pneumococci, they disappear within twelve hours after the injection. The temperature usually rapidly falls after the initial rise to a point lower than before the rise, and the symptoms as a rule improve sooner than the average untreated case of equal severity. Serum sickness, with rashes, painful joints, swelling of lymph glands, and other symptoms, occurs to a greater or less extent in about 50 per cent of the cases during convalescence. The serum sickness, while it lasts, is very annoying, but not dangerous. The mortality up to the present time has been considerably less in the treated Type I case than in those untreated.

COMMON COLDS AND GRIPPE.

BULKLEY, in the *Medical Record* of October 11, 1919, says that in the interest of humanity and at the risk of being criticized he cannot refrain from writing as he did some time ago, in regard to the supreme value of the measures which he has repeatedly advocated in common colds and grippe, as he has had evidence in hundreds of cases. He is especially impelled to do so by his own personal experience.

The day before he wrote he had about as severe a cold as was possible, which had been coming on several days, and had been neglected, and he sneezed and coughed all day. In the afternoon he took one or two doses of soda, half a teaspoonful, and in the evening took five more at half-hour intervals, in warm water. At midnight he took one of the grippe powders which he prescribes, ten grains of phenacetine with twenty of soda, with hot water, and went to bed. He slept soundly until 7.30 the next morning, when he took another of the phenacetine and soda powders and found the cold entirely gone; the same experience which he has had before and which he has reported.

Last year from October until spring he wrote for the phenacetine and soda powders, ten grains and twenty, almost every day, and sometimes at least four times in the day, for patients threatened with grippe, and although he questioned many patients at subsequent office visits, he has yet to learn of any failure to arrest the trouble.

He realizes that he is making bold and almost unbelievable statements, but he only asks the profession to give it a trial and to report the results, good or bad.

To be successful the treatment must be carried out rigorously and fearlessly in the full and repeated doses mentioned, for many physicians to whom he has mentioned it have questioned the size of the dose and feared to give it. He has never known an unpleasant effect, except in one patient whose lips turned blue, causing her to be anxious; but this soon passed off, and he afterwards learned that she had always been peculiarly sensitive to the least administration of any of the coal-tar products. He has frequently had patients who have taken a dozen powders within a day or two with only good results.

In his own family in the past years he has repeatedly treated some cases in which the grippe had already advanced considerably, with fever and great prostration, and mentions a single case occurring last winter. A strong, vigorous girl, of about twenty-five years, had been so sick for a day or two that her friends refused to attend her, fearing grippe. When he learned of it on a Monday morning he gave her one of the powders with hot water, leaving others for her to take every two hours. When he first saw her she was in bed, very sick, with a medium high temperature, the head and neck bound up on account of the sore throat, and she complained greatly of general aching pains. At five or six in the afternoon she was feeling much better. He gave her an active cathartic of blue mass, colocynth and ipecac, and had the powders continued every two hours, if she was awake. She was also to drink as much hot water as convenient between the powders, but not to take a particle of food of any kind, which she had not done for twenty-four hours. The next morning at nine o'clock she was sitting up in bed, with the head and neck unbound, with no fever, and claiming to be well. He ordered her to take no food, not even milk, and ordered the powders still every two hours, until one o'clock, when she was to dress and go down to lunch. She resumed her work in the afternoon and remained well.

One cannot explain why certain remedies act, nor can he tell how or why he struck on this treatment fully twenty years ago, which he has repeatedly employed with each recurrence of the grippe in these past years, certainly in hundreds of mild or beginning disease and also in more severe cases. Experience taught us the value of mercury, quinine, morphine, etc., without any true knowledge of their method or their action, and it must be acknowledged that there is much in the line of successful therapeutics which it is difficult always to explain logically. Bulkley adds that if an explanation is wanted as to the action of the soda it is probably found in the rectification of the acidosis which presumably affords the proper soil for the infecting microörganisms, while the repeated doses of the phenacetine probably are destructive to the same.

THE TREATMENT OF INFLUENZA WITH NOVARSENOBENZOL.

The *New York Medical Journal* of November 8, 1919, in an editorial calls attention to the fact that during the pandemic of influenza, which is still smoldering, many cases of the serious types of the infection, which resisted all methods of treatment, were encountered. In these circumstances many new treatments have been tried with the almost exclusive object of discovering an energetic anti-infectious remedy, and among them should be mentioned novarsenobenzol. In reality when Bruhl and Franck first resorted to this drug in the serious forms of the grippe, they did so because they regarded the arsenic compound as a powerful parasiticide when employed in the case of the spirochetes, and also upon the hypothesis—which will remain plausible so long as uncertainty exists as to the true pathogenic agent of influenza—that spirochetes are not, perhaps, foreign to the origin of this disease. Whatever may be thought of this supposition, the idea of employing novarsenobenzol exclusively in the severe types of influenza is not devoid of interest.

Bruhl and Franck first used the drug by mouth in the form of compressed tablets, each containing ten centigrammes of novarsenobenzol, in the daily dose of three to four tablets, in cases in which the influenzal symptoms continued for a fortnight or more. Some patients thus took in all five grammes, or even more, without any untoward results.

In the more severe forms of influenza the drug was given intravenously in the dose of thirty centigrammes to the injection, and this was repeated, according to the individual indications, on two or three days in succession or with an interval of two or three days. In the latter circumstances the drug was given by mouth in order to complete the intravenous treatment. Again no untoward symptoms were noted, and the writers found that in certain forms of grippe with albuminuria or diarrhea these symptoms were overcome by the treatment. If the results obtained from this medication are examined it will be noted that, in a general way, the evolution of the disease was quickly modified; there was a gradual —not sudden—defervescence lasting several days, while the physical signs continued their evolution in apyrexia.

Bruhl and Franck treated a total of thirty-eight cases of the serious forms of influenza with novarsenobenzol with eight deaths, a mortality of twenty-one per cent. There were ten males, three of whom died; five of them presented severe infection and were given intravenous injections. Of these five, three recovered. On the other hand, twenty-eight females, thirteen of whom were severely infected, were treated only with tablets, and all recovered. Fifteen others were desperately ill, six being treated by intravenous injections and nine by tablets. In the latter series there were five deaths, three occurring during the night of their arrival at the hospital, or on the following morning. These statistics were made during the last half of October, 1918, at a time when the epidemic was particularly serious and patients were brought to the hospital practically moribund. Bruhl and Franck believe that many of their patients recovered who would have died otherwise, and they point out the harmlessness of novarsenobenzol in the treatment of several acute diseases.

[The editor of the GAZETTE reported on the use of arsphenamine in cases of influenza in the issue of the *United States Naval Marine Bulletin* for October, 1919.]

THE TREATMENT OF ACID BURNS.

BERRY, in the *Medical Review of Reviews* for November, 1919, states that wherever workmen are handling acids or chemicals, there should be readily available clean running water to be used for washing hands or irrigating eyes, on which the chemicals may have splashed. The first-aid treatment in such an emergency is to lay the victim on his back and thoroughly irrigate the eyes, lifting the lids and enabling the water to reach as far thereunder as possible. A small flexible hose from which a moderate jet of water can be directed into the eyes should be at hand. If no better way is evident, plunge the head into a pail of water and open the eyes so as thoroughly to cleanse them of the acid. If the works are equipped with first-aid kits, then apply salve, bandaging the eyes, and send for a doctor.

The important thing is to dilute the chemical as quickly and thoroughly as possible.

In the manufacture of caustic soda, severe burns are likely to be sustained by the workmen unless constant care is exercised in preventing spattering of caustic soda liquor, any flying of chips of solid caustic soda when opening packages or when breaking up large pieces. The mucous membrane of the eyes and of the mouth is particularly susceptible to injury from burns of this nature. While this hazard exists in the manufacture of caustic soda, attention is called to the fact that no special risks peculiar to themselves exist in the manufacture of either soda-ash or bicarbonate of soda.

Dilute acetic acid has been generally used for immediate first-aid treatment of burns from caustic soda. Its effect is to at once neutralize the caustic soda and convert it into harmless sodium acetate, stopping its injurious action upon the tissues.

This treatment, as extensively used, is prepared from good quality commercial acetic acid by diluting it to an exact content of 2-per-cent actual acetic acid. If the commercial acetic acid be of 30-per-cent strength, one quart of it is added to fourteen quarts of water to give 2-per-cent strength. After this dilution the acid is analyzed to make sure that its strength is 2 per cent. After the eye is thoroughly washed with this preparation sweet oil is applied. It is important that no absorbent cotton be used for cleansing the burn, because the fibers of the cotton become embedded in the wound.

Bottles containing the dilute acetic acid should be placed at frequent intervals throughout the manufacturing plant, and the workmen trained to use it immediately when needed.

Inasmuch as there are those who feel that dilute acetic acid wash does not measure up to the requirements for treatment of eye burns so successfully as might some other treatment, it should be stated that 1- to 2-per-cent solution of zinc sulphate as a relief measure has been in continuous use by at least one company for the past eight years in hundreds of cases, regarding which its safety director writes: "We have yet to have a case of material loss of vision resulting from such an injury."

The primary reaction is as follows:

Zinc sulphate		Sodium hydroxide	
$ZnSO_4$	+	$2NaOH$	=
Sodium sulphate		Zinc hydroxide	
$Na2SO_4$	+	$Zn(OH)_2$	

The advantages which are claimed for the use of zinc sulphate over a dilute acetic wash are as follows:

1. Less irritant.

2. Complete or 100-per-cent reaction, rather than an equilibrium reaction as with acetic acid.

3. Antiseptic quality of known value.

The details of the procedure adopted for the treatment of eye burns of this nature by the company referred to are as follows:

"We have distributed throughout our caustic buildings, distinctly marked, small boxes containing a 12-ounce bottle of 2-per-cent zinc sulphate solution and one or more eye-cups. These boxes are kept supplied with the solution.

"When a workman receives a splash of caustic in his eye, his first thought is to get the zinc sulphate solution, and we have trained them to keep the location of these boxes pretty well in mind. It is a fact, however, that some other workman, on hearing his cry, will get the solution to him. The eye is thoroughly washed at the point where the caustic is received, and then the man goes to the dispensary as quickly as he can get there. In the dispensary the man is laid out on the table and more zinc sulphate is applied. Of course the pain is severe, so we then use cocaine (2 per cent), and after this repeat the dose of zinc sulphate. By this time we are pretty sure that the caustic is neutralized entirely, so we apply more cocaine, then olive oil, apply a cold compress, and send him to the physician. The after-care of such an eye burn is exactly the same as for any burn or irritation of the eye, to permit of proper healing and control of possible adhesions. Ice-packs are kept on the eye while the pain is severe, and this usually makes a patient comfortable."

Proper and quick neutralization is the essential treatment, and by quick neutralization Berry means that received a few seconds after the caustic has entered the eye. Bad burns are the result of waiting until the patient can get to the dispensary.

For acid burns Berry lays the same stress on proper and quick neutralization with sodium bicarbonate (c.p.), and follows this with the cocaine treatment and olive oil. For toluol and benzol splashes (where the result is not necessarily a burn, but intense irritation, and this is true with toluol fumes) his treatment is cocaine (2 per

cent) and let the patient stand with his eye open in front of a fan to evaporate the benzol or toluol. He refers particularly to toluol and chlortoluol, with its derivatives, as these are the products which cause the intense irritation. He also finds that steam (properly regulated) is very effective for this purpose.

ANGINA PECTORIS.

GORDINIER, in the *Medical Record* of October 4, 1919, states that no greater or more responsible duty confronts the practitioner than to properly guide and treat the patient who suffers from angina pectoris. Each case should be studied from every possible angle. We should be familiar with the condition of the myocardium, the cardiac reserve, the condition of the vessels and the blood-pressure, the renal functioning, the condition of the gastroenteric tract, the amount of sleep, the exact character and amount of work, whether physical or mental, the habits of the patient as to excesses in eating, drinking, and smoking, and the presence of any constitutional disease or vice which predisposes to angina, such as gout, diabetes, or nephritis. We should be fully conversant with the character and frequency of the attacks and whether they are of the mild or major type. The exact exciting cause of the attack should be carefully sought in each case and, if ascertained, rigidly prohibited. The question of syphilis, because of the rôle which it plays in the causation of this complex, should be most carefully investigated and a Wassermann reaction should be carried out in each case, so that the early intensive antiluetic treatment may be instituted.

The patient should be properly advised in regard to the selection of the diet. He should be urged to eat sparingly and warned never to exercise directly after a meal, or to eat heartily at night, and the use of tobacco should be limited or absolutely prohibited. He should have the maximum amount of rest, with freedom from worry and anxiety. Exercise should be limited to moderate walking on the flat, short of producing precordial distress, dyspnea, or fatigue. Carriage or automobile riding is permissible. If possible the winters should be spent in the South, so as to avoid the inclement weather of the North.

For the paroxysm, the nitrites so long ago pointed out by Sir Lauder Brunton are almost specific, although one sees now and again a case where they actually fail to bring relief. He is fond of using at the onset inhalations of amyl nitrite, and this to be quickly followed by good stiff doses of nitroglycerin, and says, "Don't be afraid to use it." He prefers to use the one-percent alcoholic solution dropped just beneath the point of the tongue in the sublingual region. If relief does not speedily come from the nitrites, then recourse should at once be had to morphine and atropine. This latter drug will also help to stave off vagus inhibition. Additional doses of atropine should always be used if faintness, marked slowness of the pulse, or an intense feeling of impending death should come on, for it is generally believed that those sensations are in part or wholly due to vagus inhibition. Atropine dilates the peripheral vessel and probably the coronaries.

One marvels at times, in gouty patients, at the relief that comes and the increase of the interval between the attacks or their complete cessation, following the use of colchicum with eliminants.

Well does he remember a case of a man who had had repeated minor attacks of angina while suffering from gouty manifestations, which were entirely relieved with colchicum, an occasional blue pill, plenty of water, and the citrates. He died, however, some years later, from myorcardial insufficiency following a status anginosis—coronary thrombosis.

Gordinier has never seen any remarkable effects from the use of theobromine or the caffeine products given with the idea of improving the coronary circulation through vasodilatation.

Chloroform inhalations sometimes may give the only relief in severe anginoid paroxysms. He recalls the case of a prominent clergyman, a great sufferer from angina, whose only relief came from chloroform inhalations, though the nitrites, morphia, stimulants, antispasmodics, and other sedatives had been frequently used.

Cases of angina associated with or followed by myocardial insufficiency, particularly those cases associated with auricular fibrillation, flutter, or alternation, should receive digitalis until relieved and then be treated for long periods of time with small tonic doses.

After the paroxysm passes the patient should be advised to rest absolutely for a period of several days, and should be carefully coached in regard to diet, elimination, exercise, and work.

The iodides, administered for long periods of time, are of unquestionable value in the treatment of angina pectoris. They lessen the severity of the pain and widen the interval between the attacks, and in some instances cause their cessation.

He has had no personal experience with the use of bloodletting in angina pectoris. Some clinicians, however, are in favor of it in the hypertensive cases associated with angina pectoris.

DEGENERACY AS SEEN AMONG MORPHINE ADDICTS.

In the *New York Medical Journal* of November 15, 1919, PEARSON states that the treatment of the morphine addict, who gets in a bad way through the operation of degenerative factors other than opium, is so unsatisfactory that he lays the greatest possible stress upon what can be accomplished by way of prevention. Of course many will think of Congress and the State legislatures as being able to give us the quickest and surest means of prevention. There are habits and habits; to Pearson's mind the law-making habit is the most vicious of all. Since the passage of the various antinarcotic laws, the authorities tell us that there are more addicts in the country than before. They tell us this not because they think the law has been a failure but as a plea for more severe laws. The most that the law appears to have done up to date has been to furnish a means of livelihood for certain government and State officials and persecution for the addict. We are overburdened with measures of compulsion of various sorts. We have associations and organizations innumerable, each seeking to accomplish some particular object. Their rulings and by-laws so far as their own members are concerned have all the compulsory effect of actual law.

Efforts are being made to get the profession and the public, so far as the addict is concerned, to substitute real knowledge for prejudice. Berry believes, in so far as stopping the spread of morphinism and other forms of the opium habit is concerned, that education is better than compulsion.

So far as degeneracy among morphine addicts is concerned, much of it could have been prevented by intelligent advice by the family physician to the morphine addict under his care. We have only to enumerate the degenerative factors to see where prevention can be used to good advantage. First, the family physician should be wary about advising absolute withdrawal of the drug. This especially, if repeated many times, is almost certain to cause mental impairment. Sometimes even hopeless insanity may be caused in this way. In any case, mental impairment is more likely to follow this treatment than is permanent recovery.

The morphine addict with syphilis should receive energetic treatment by his family physician before being sent away for treatment for morphinism. For reasons that he does not feel called upon to explain, Berry does not like to treat syphilis in conjunction with the treatment for morphinism unless the urgency of the symptoms demands it. As to the use of alcohol, cocaine, cannabis indica, hyoscine, chloral hydrate, and other drugs, the family phy-

sician should instruct the patient as to the danger of the use of these in conjunction with morphine. The danger of a general mental breakdown through their use should be fully and if need be frequently explained. Morphine alone will satisfy the craving for narcosis. If necessary the patient should be put under the care of a competent nurse until alcohol and all other narcotics have been discontinued. After this the addict should be permitted enough morphine for comfort until considerable mental improvement has taken place. The reader may be astounded by the statement that improvement can take place while the addict is still taking morphine. However, such improvement will certainly take place. Berry has treated many morphine addicts who at one time were mixed addicts, and had voluntarily discontinued everything except morphine, giving as the reason that they felt they were going mad.

He has found such cases no more difficult to handle than the straight morphine addict. In taking the narcotics away it may be necessary to increase the morphine for a time. This may seem to conflict with the law. He advises the physician in such a case to seek the coöperation of the government or State officials by explaining in full the details of the case and the purpose in view. The law, by making it difficult at times for the addict to get his morphine, has, he believes, increased the number of mixed drug takers and in consequence has increased the number of degenerates among morphine addicts. Again, every time a morphine addict is locked up and his morphine taken away from him he becomes a worse type of addict, except in those exceedingly rare cases in which this sort of thing effects a permanent cure.

In conclusion Berry states that probably the severe laws that we now have would never have been passed except for the degenerate addict, and the laws, although well meant, are increasing this very type of addict. There are problems connected with the care of addicts that the layman can never understand. There are many things about addictions that the average layman does not at the present time understand, but the medical man, through his scientific training, can understand these things. For these reasons the medical profession should insist that the solution of the problem be placed in their hands. There was a time when the common jailer was thought to be good enough to care for the insane. And the insane were supposed to be possessed by the devil and, therefore, not entitled to anything better. We think differently to-day. Berry hopes the time is coming when we will think that the addict is entitled to something better than he is getting to-day.

THE REPUDIATION OF MATERIA MEDICA AND THERAPEUTICS IN MODERN MEDICAL TEACHING.

DAWES, in the *Medical Record* of October 18, 1919, states that the first real assault of any magnitude upon materia medica and therapeutics was made when a little clique of medical politicians and osteopaths met in a certain doctor's office in the city of Albany, New York, and concluded a deal which made possible the passing of the New York State Medical Practice Act of 1909.

This act removed from the list of subjects in which a candidate must pass in order to practice medicine in the State of New York both materia medica and therapeutics, admitted to practice their calling several hundred osteopaths without examinations of any kind, and provided means by which graduates of schools of osteopathy might later be admitted to practice. The object of this outrageous deal was to get votes controlled by the osteopaths among members of the legislature. The effect can readily be seen if we make a careful examination of the announcements of what are called Class A medical schools on file in the library of the New York Academy of Medicine, which show that five of the smaller schools teach some kind of materia medica, fifteen teach pharmacology, and

fifteen teach therapeutics. Not one of the larger schools teaches materia medica; the pharmacology taught consists for the most part in demonstrations of the physiological action of types of therapeutic agents on animals, does not include the properties, doses, or methods of administration, incompatibilities, nor the preparations of drugs.

Only two of the larger and more important schools teach real, practical, applied therapeutics, and in most of the fifteen it is not taught as a distinct branch but as a minor study accessory to something else. In one it is only electrotherapeutics, in another hydrotherapeutics, and in a third suggestive-therapy—in other words, the "Harvard idea" has cast a pall over all our medical schools, and the "full-time" teacher is rapidly pushing out the experienced clinicians whose past efforts we have to thank for our present-day progress, men to whom teaching was really a labor of love and never a mercenary pursuit. The heavy hand of the "little Ironmaster" rests on the colleges, for the recipients of his bounty must conform to his standards or lose their rating. Those who dominate to-day require of a graduate two very valuable requisites—he must be able to make a diagnosis and he must know pathology and be able to make an autopsy so that he can confirm the diagnosis. But treat disease, cure the sick, relieve pain and suffering—nonsense! What true scientist cares for such rot! Ask a medical student what he is particularly interested in—he will tell you of any one of many different, very laudable things excepting the cure of disease. It is perfectly safe to assume that, no matter how ridiculous such an attitude may appear to the modern teacher of medicine, the average man when he goes to a doctor cares not a "tinker's dam" about the predominance of giant cells over phagocytes, of the disproportion of osteoblasts, of whether the autopsy findings in his case will reveal that he had a large white kidney instead of a small red one, however desirable it may be to know these facts, but goes for the specific purpose of being cured or relieved from his distress, either real or imagined.

One of the most skilful and best known physicians in this country told Dawes recently, apropos of the abandonment of therapeutics, that the only instruction in that subject given in the college in which he is a dominating factor is covered by five or at the most ten minutes at the end of an hour or two lectures on some given disease.

One of the leading men in one of our greatest medical schools once complimented Dawes on his qualities as a teacher and ended by saying, "But your subject should never be taught." A week later Dawes was called to see this man's wife, who was ill with bronchitis; his medical friend remarked that he couldn't control the cough, having given paregoric, brown mixture, heroin, codeine, creosote, muriate of ammonium and several other drugs in the preceding twenty-four hours without avail! He certainly practiced what he preached.

Recently he saw a man in consultation and made a diagnosis of amebic dysentery on laboratory findings. The patient received inadequate treatment and then went to a man who is considered by many the best medical man in this country. He was placed in a private hospital and during six weeks was examined by twenty-four different specialists, including dentists, radiographers, psychologists, oculists, and aurists, and at the end of that time, when he rebelled and was about to leave, he was treated with emetine and speedily cured.

If a man knows no materia medica what might happen if he was prescribing large doses of iodide of potassium and at the same time decided to give his patient calomel? Would he distinguish between tincture of opium and the camphorated tincture of the same drug? Will he give his patient tincture of the chloride of iron and let him drink tea immediately thereafter? A wonderfully made chronometer watch, taking a long time and many dollars to construct, may have in it a strong mainspring, a perfectly adjusted hairspring, and all the bear-

ings may be jeweled—it may even have a luminous dial; but if it is not provided with hands it cannot perform the duty for which a watch is made. And so, to pursue the analogy, a doctor may be a skilful diagnostician, an experienced pathologist, a wonderful microscopist of precision; and yet if he knows nothing of materia medica and of therapeutics he cannot perform the only duty for which his calling is an excuse.

No wonder that the general public, in its desire to have something done for its ills, crowds the waiting-rooms of the osteopaths, the chiropractors, and the *x*-ray scientists, or turns to some of the so-called religious newspapers to read with interest the testimonials of ex-statesmen, ex-doctors, ex-public officials, and clerical incompetents as to the value of some patented article the very name of which shows its unscientific origin and composition.

EMETINE IN HEPATITIS.

GUNN and SAVAGE in the *Journal of the Royal Army Medical Corps* for November, 1919, conclude that they would recommend acute cases to be treated with one grain of emetine for twelve days, followed by three grains of emetine and bismuth iodide for fourteen days.

If the condition is very severe when treatment is first begun, and may probably prove fatal if not rapidly brought under control, they recommend an intensive course of treatment of one grain of emetine hypodermically daily in the morning and two or three grains of emetine and bismuth iodide at night. The patient should be carefully watched for any untoward effect of treatment.

Acute cases which relapse with symptoms of dysentery might also be treated with the last mentioned course.

They further recommend the carriers be treated by the method first stated.

Carriers which relapse after treatment should be discharged if they have no symptoms. They should be informed that they are in no danger themselves, but are a danger to others. An entry should be made in their pay-books. They should not handle food, and should be instructed about the spread of dysentery from feces. In the event of the patient subsequently reporting sick, the medical officer could see by the pay-book that the patient was a dysentery carrier, and would thus be on his guard against liver abscesses or any other sequelæ of dysentery. Gunn and Savage may be too optimistic, but they believe that the number of such sequelæ in carriers would be very small.

THE THERAPEUTIC VALUE OF TEA.

The *New York Medical Journal* of October 25, 1919, in an editorial on this subject states that in these days of prohibition a stimulant is required. If tea may be termed a stimulant, it may take the place of some of those strong liquors which are now banned. However, there are those who hold the view that tea is harmful, and while it cheers but does not inebriate it injures digestion and with coffee should be classed among the harmful beverages. On the other hand, there are many who think that tea is distinctly beneficial and that in some cases it exerts a somewhat extraordinarily favorable effect. In the removal of depression, for example, the virtues of tea have been highly lauded. Some time ago Haig drew attention to the influence of the morning cup of tea in dissipating the irritation and depression which some unfortunate individuals suffer from on rising. He ascribed such lowering of the mental horizon to excess of uric acid in the blood, and attributed the good effects of the tea in removing these symptoms to the supposition that it, in common with other substances of a like nature, freed the blood of uric acid or at least tended to decrease the amount.

Subsequent investigations do not appear to have corroborated this theory, and yet the fact remains that with many persons the morning cup of tea dispels mental miasmas as effectually as the sun the early dews.

But Haig is only one of many who have noticed that tea acts like magic in overcoming morning irritability. Most of these authorities do not attempt to explain the reason for this phenomenon except by vaguely suggesting that tea exerts a stimulating effect on the nervous system. They omit to state that the blood plays a foremost rôle in evoking nervous symptoms, and that, as Haig has pointed out, it is essential to correct morbid blood states if it is desired to treat successfully functional nervous disorders.

In an editorial in the *Medical Press* of August 27, 1919, the nervous depression which affects so many civilized people, and especially women, upon arising is bluntly called morning toxemia. The writer of the editorial thinks it may be safely concluded that these early morning symptoms are related to the condition of the blood, and goes on to say that we may postulate among its multitudinous constituents the presence of two classes of substances having opposite effects upon the nervous system. When the former predominate there is a feeling of vigor and joyousness, while lassitude and depression reign supreme when the latter are in the ascendant. Although in this article the cause is not suggested, it is stated that it may be reasonably supposed that nervine stimulants and nervine depressants exercise their influence through the medium of an organ situated in the optic thalamus.

It may be concluded that in spite of our lack of knowledge as to the exact manner in which tea acts in removing morning irritability and depression, it has a therapeutic value the extent of which has not been gauged. As bearing upon the subject, the writer recently had an experience of the seemingly beneficial effects of tea. A lady of his acquaintance, not a patient, was suffering very great pain from neuritis. So acute was the pain that unless narcotics were used she passed the night in misery. It was suggested that she try the effects of tea in the night, and on following the suggestion the pleasing result supervened that the pain was so greatly alleviated that no particular discomfort was felt. It would be making exaggerated assertions for the therapeutic action of tea to assert that such relief from pain was due to it. Of course the mental effect must also be taken into account.

SODIUM CITRATE IN THE TREATMENT OF PNEUMONIA.

WEAVER, in the *New York Medical Journal* of November 1, 1919, states that the peculiar property of sodium citrate in preventing coagulation and reducing viscosity of the blood is recognized and in use to-day as a scientific fact, and needs no further proof. There are some other points in favor of the use of sodium citrate that make it doubly valuable in the treatment of pneumonia.

Alkaline salts are necessary, but these salts are rapidly eliminated and are not replaced from the restricted diet upon which most fever patients place themselves by loss of appetite and other causes. The degree of alkalinity of normal blood expressed in terms of sodium hydrate is equivalent to from 182 to 275 milligrammes to 100 Cc. of blood, so that a wide variation is not incompatible with health.

Löwy and Richter and others maintain that a medium degree of alkalinity of the blood is necessary in order that it may exert its normal antitoxic power. They have shown that "leucocytes increase in numbers and proportion as the alkalinity of the blood becomes more marked." Acidosis gives the opposite effect.

A number of experimenters have also observed that immunity to infection increased with the increased alkalinity of the blood and diminished when the alkalinity was reduced. Metchnikoff states that alexin (the active principle of which is a trypsin-like ferment) acts only in the presence of alkaline salts, and when relieved of the salts by dialysis the serum loses its hemolytic power, but is instantly restored on the addition of the salts. Hence, with

increased alkalinity of the blood must come increased antitoxic power, an active leucocytosis, and its greatest possible fluidity, all of which are necessary in order to meet the chief pathogenic indication in pneumonia.

In order to meet the indications as outlined, Weaver gives sodium citrate in large doses with plenty of water at the rate of fifteen to twenty grains an hour, or forty grains every two hours, sometimes more, to a full-sized adult, continued night and day until the result is attained. Occasionally this dose will act as a purge, and the salt passes off through the bowels. This should be checked by a few doses of an opiate. The medicine should be continued into the second or third day after the crisis, to assure complete resolution. It should be firmly insisted upon that small doses have no effect and will be disappointing.

It is understood that citrates are converted into carbonates in the blood in the ordinary doses in which they are given; but with the larger doses certainly some of it may go over into the blood as citrate, and when the point of saturation of the calcium ion is reached, the blood will not coagulate so readily and is of the highest possible fluidity; then it begins to find its way through the pervious but collapsed blood-vessels of the hepatized lobe. If the blood-pressure is low from cardiac disease, old age, or other causes, and the pulse rapid, digitalis and strychnine should not be forgotten. In his most severe cases of pneumonia and bronchopneumonia, recovery has not been delayed beyond the fourth day.

Since this article was written we have passed through one of the most severe pandemics in the history of civilization—influenza—with many forms and degrees of mixed infections, the most important of which were two peculiar and often fatal forms of pneumonia. The pathology of influenzal pneumonia, as given by Douglas Symmers and others, shows that it is not an ordinary pneumococcus or croupous pneumonia, but is characterized by a mixture of several different pathological processes, the result of mixed infections.

Influenzal bronchopneumonia is due to the hemolytic streptococcus, usually fatal, and influenzal lobar pneumonia is due to the combined infection of the influenza bacillus with the pneumococcus. No treatment seems to have been of much avail in the streptococcic pneumonias. In the lobar form, sodium citrate would reduce temperature when other measures failed; but the consolidated lobe cleared up only after the lapse of from one to three weeks. Its action was proved in some of his cases by omitting it for a day or two and iodide of potassium given in its stead, when the temperature would run two or three degrees higher. Upon resuming the sodium citrate the temperature would again subside to or below its former level, with recovery somewhat slow, but sure. In all his cases of lobar pneumonia of influenzal origin the patients treated with sodium citrate recovered, but not by crisis as in the non-influenzal pneumonia, concerning which this paper was written.

Weaver concludes that the method of treating pneumonia by full doses of sodium citrate has led to a marked reduction in morbidity as well as in mortality. In lobar pneumonia it is almost specific. No comparable results have been obtained by any other method.

[The clinical observations of the writer may be correct. That sodium citrate acts in the manner suggested is open to grave doubt.—Ed.]

TREATMENT OF BURNS.

Clark, in *Modern Medicine* for November, 1919, states that the conditions to be combated are shock and nephritis. Secondary conditions such as fever and pulse-rise, with meningeal symptoms, vomiting and diarrhea, and sometimes symptoms of gastric or duodenal ulcer, may appear as a result of thrombosis and toxic absorption from the local burned area. These must be met as they arise.

The order of treatment is as follows:

1. Put the patient to bed in a warm room with hot-water bags to feet.

2. In removing clothes, cut around burned areas, being careful not to tear the clothes from the skin and cause additional trauma and avenues for infection.

3. Protect the burned areas thus exposed by covering with sterile towels or sheets.

4. Give patient one-fourth grain morphine with one one-hundredth grain atropine by hypodermic. Repeat with caution if necessary.

Morphine is a stimulating narcotic, and if used carefully can be employed to combat the shock without risk.

5. As soon as possible, start a Murphy drip in order to combat shock and supply fluids to the kidneys.

6. When patient's condition begins to improve start treatment of the local burned area.

The local treatment of a burn is practically the same for first-degree, second-degree, and third-degree burns. One or all types may occur in any case.

The first-degree burn involves only the outer layer of the skin; there are no blebs following and no scarring results. The first, last, and only treatment needed in this type of burn is to powder freely with powdered stearate of zinc. When this type merges into second- or third-degree burns in the neighborhood the whole area would best be treated with a solution dressing. Before this is applied, however, a careful cleansing of the skin with a mild antiseptic is carried out. This must be done thoroughly but gently, especially around the burned areas. For the skin three or four inches from the burn benzene applied with cotton mops and followed by 3½-per-cent tincture of iodine is probably the most satisfactory method of sterilization. As we approach the burn, ether should be substituted, as it is less irritating. It is applied with cotton mops. The doctor should wear sterile gloves, use sterile instruments, and if he opens blebs should first sterilize the area with 3½-per-cent tincture of iodine. Moorhead recommends puncturing the bleb aseptically at the junction between the sound and unsound skin.

After the surrounding skin has been prepared and the blebs attended to, the burned area should be covered with a suitable sterile dressing. There are three types of dressing now in use:

1. Wet solutions, of which the most favored are 1-per-cent solution of picric acid and a saturated solution of bicarbonate of soda.

2. Ointments, of which the most used are boric acid and soda bicarbonate, 3 per cent. A number of special burn-ointments have been developed, two of which have been so thoroughly tried out that their formulæ will be given.

First ointment: Used by Dr. A. W. Colçord in the treatment of 8000 burns:

℞ Carbolic acid,
Thymol,
Menthol,
Camphor, of each gr. 5;
Ichthyol,
Balsam of Peru, of each gr. 10;
Zinc oxide,
Starch, of each 1½ drachms;
Petrolatum to make one ounce.

Mix well.

Doctor Colcord uses this ointment in one-sixth strength from the start, applied daily with aseptic precautions.

Second ointment: Used at La Panne, Belgium, during the war:

℞ Vaselin, 20;
Lanolin, 20;
Antipyrin, 60;
Boric acid, 60;
Salol, 20;
Iodol or iodoform, 20;
Phenol, 20;
Bichloride of mercury, .02.

This ointment gave extremely good results and was used with aseptic caution.

3. *Third type of primary dressing.* The third type of primary dressing is warm wax. This method started with the proprietary substance ambrine, but it has been found that the action is only mechanical, so that there are a number of mixtures of paraffin and resin now on the market which are quite satisfactory. One used at the

American Steel and Wire Company, and Norton Company at Worcester, consists of:

Paraffin, 70;
White wax, 20;
Resin, 10.

All of the combinations are dispensed in solid form and must be melted before using.

The method of applying the wax is first to dry the skin thoroughly, using an electric blower such as is employed in barber shops for drying the hair. After the area to be treated is thoroughly dried, the wax is either sprayed or painted on. Spraying is wholly painless, painting is nearly so. The wax must be just liquid before being applied, and can best be melted down in a double boiler. When the wax is painted on, sterile cotton swabs on applicators are the best instruments to use. The warm liquid wax should be dabbed on, not "painted." The wax hardens almost at once, forming a smooth coating extending over the sound skin for a short distance on all sides of the burned area. Upon this thin hardening wax layer sterile sheet wadding which has been dipped in the wax is laid, and over this another layer of sheet wadding. The whole dressing is held in place by a bandage. The advantage of using wax is the immediate covering of the burned area with a smooth, sterile, protecting surface with splinting of the injured part.

The wax is removed daily, coming off *en bloc* with the sheet wadding. The secretions underlying it are washed off with normal saline, the area dried with hot air, and a fresh wax dressing applied.

It seems to make little difference which method is used if the work is done carefully and absolute aseptic technique maintained throughout. Personally, Clark prefers a sterile saturated solution of soda bicarbonate for the first few dressings. It is easy to apply, gives considerable relief to the patient, and requires less technique and handling of the injured area than the ointment or wax. It should be applied by saturating a piece of old sterile sheeting in the solution and wrapping this loosely about the burned area. The moisture is maintained by surrounding the wet linen with oiled silk. The dressing can be moistened from time to time by lifting a corner of the silk and carefully adding the solution.

If there is little sloughing the ointment or wax treatment can be instituted; but if much sloughing is present a moist dressing will be needed. The disadvantage of continuing the soda is that if any infection is present it is liable to flourish in the alkaline medium unless the medium is distinctly antiseptic. For this reason it is well to stop the soda dressing after twenty-four hours and use alum acetate solution:

℞ Alum, 5 parts;
Lead acetate, 25 parts;
Water, 500 parts.

Dissolve separately and mix. Do not filter. Shake before using.

This solution is mild, non-irritating, and antiseptic. It has a white precipitate which seems to have a very soothing effect upon the skin. The solution has been used largely at the Worcester City Hospital and elsewhere for burns.

After the slough has separated and granulations begun, the burn may be considered a granulating wound.

HYGIENIC TREATMENT OF CONSTIPATION.

MURRAY, in the *New York Medical Journal* of November 8, 1919, states:

1. Constipation is preventable and not hereditary.

2. Primary causes are carelessness, ignorance, or laziness, or all three combined.

3. True constipation has to do with malelimination from all parts of the body, thus clogging the system with worn-out or poisonous material.

4. Plenty of water should be drunk to supply the necessities of the body in all its parts.

5. There should be absolute regularity as to time of stools, which should be the first thing on arising without regard to whether there is a call or not.

6. If one fails to get a stool at the early

morning trial a plain water enema should be taken at once; one should not wait until later in the day.

7. A plain water enema taken at this time is the least harmful of anything, far less than physic.

8. Special diet has less to do with bowel constipation than many people believe.

9. Cathartics will not cure constipation, but are more likely to aggravate the condition.

THICK CEREAL FEEDINGS IN CASES OF MALNUTRITION IN INFANCY.

MIXSELL, in the *Archives of Pediatrics* for August, 1919, states that his attention was first called to thick cereal feeding in infancy through an article by Sauer on thick cereal feeding in pyloric stenosis and pylorospasm. Later he had the opportunity of seeing and taking care of one of Sauer's cases, and had noted the remarkable results obtained in this condition. It occurred to him that it would be an excellent idea to try out the thick farina feeding in cases of marasmus, and in cases which simply would not gain in spite of what was done for them. Accordingly four cases in the Nursery and Child's Hospital and eight cases in private were selected, the ages running all the way from four weeks to six months. The hospital cases were babies who had approached hospitalization, were physically not abnormal, and had all been tried on various formulæ in the endeavor to make them gain.

The cases in private were the same type, many of them having gone the rounds from doctor to doctor. Practically all of them had been fed on high sugar of every kind, some on high fat, some on high sugar proprietary foods, others on various formulæ, and all had failed to gain, or had gained but very little since their birth. In practically every one of this series was assimilation presumably good. They took their food, digested it perfectly, and simply would not gain.

The stock formula on which these thick cereal babies were started was approximately 1 tablespoonful of farina to 7 ounces of a 1-per-cent milk. To the entire formula about 3 per cent of cane sugar was added. This form of sugar was used to make the feedings more palatable. Later dextromaltose was added. All of this was cooked together for at least thirty minutes, or until the cereal was so tenacious and thick that it would barely fall off an inverted spoon. He has found that if it is not cooked thoroughly the baby may get a diarrhea from the high starch with the encouragement of a saccharolytic flora, and accordingly will not gain. Owing to a mistake in the diet kitchen this happened in two of the hospital cases. Just as soon as the food was more thoroughly cooked the increased peristalsis stopped, and the babies gained. He has never found any increase in the starch in the stools after a thorough cooking, and indeed the stools on the whole have been very normal. In four of his cases rice flour was used. This has the advantage of being more soluble, and has better protected colloids than farina. The pyloric reflexes, therefore, are better inhibited and are not as active.

In regard to the length of time that one can keep a child on thick cereals, there is no fixed rule. In one of his cases it was persisted in for eight months with good success. Naturally, other articles of diet were added from time to time, the green vegetables and fruit juices in particular being used. Spinach, string-beans, and Swiss chard were found to be tolerated the best. It seemed best, however, to make a change back to a milk formula at the end of about two months, dry milk being used in the majority of cases. Most of these babies seemed to have gotten into the habit of gaining, and the change back hardly ever affected them badly. To supply the water deficiency, there was ordered water in amounts up to 6 ounces, three times a day. However, in two of his cases no water whatsoever was given, even during the hot part of the summer. The urine in every case was found normal, and there

was no loss of weight, or edema, or evidence of water retention. This seems quite remarkable on account of the high starch and sugar given, and the normal stools. The amount of fluid lost in the stools, however, could not be estimated. In fully three-quarters of the cases various forms of sugar had previously been given in large quantities in the hopes of making the child gain, but none of these had proved successful. By the thick cereal method there was increased tolerance with no disturbance of sugar or starch metabolism, and the rapidity of gain was marked. It should be noted that orange juice was always given as an antiscorbutic. In view of this series of cases he feels that although he has not a cure-all for all difficult feeding cases, he thinks that his results justify its thorough trial, and he concludes that:

1. Thick cereal feedings are a valuable adjuvant in cases which will not gain.
2. Babies tolerate a high starch and sugar in this method of feeding.
3. For this reason high calories may be given.

SHOCK AND HEMORRHAGE.

CRILE, in *Modern Medicine* for November, 1919, states that the consensus of opinion of the Interallied Surgical Congress of the British and American surgeons in military service generally may be summed up in the following brief dictum: *The best treatment of hemorrhage and shock is rest, warmth, morphine for pain, fluids, and blood transfusion.* Civilian surgery and war surgery in their relation to shock present one important difference. The depleted civilian patient may be in a "pure-shock" state when he comes under the surgeon's care; the wounded soldier is often in shock. Nevertheless, identical methods will prevent the development of shock in the first case, and will successfully combat the present shock in the latter.

Physiological rest includes physic as well as physical rest. It means reassurance; it presupposes an atmosphere of quiet and confidence; it requires optimism as well as skill. Physiological rest can be achieved only by the coöperation of surgeon and interne, nurse and orderly.

The loss of power to create body heat is one of the damaging effects of shock, for the organism is much injured by a subnormal temperature. The application of heat, therefore, is one of the essentials of the treatment and of the prevention of shock. The most readily applied form of heat is hot air under blankets. Under war conditions hot-water bottles and other forms of direct heat are not useful because of the time required for application and because of the danger of producing burns.

If the patient has pain, if he is restless, and if the pain and restlessness cannot otherwise be relieved, morphine in one-sixth-grain doses may be given until the pain and restlessness are overcome. There is evidence that morphine in still larger doses is specifically useful.

If there is a wound of the chest which interferes with the supply of oxygen, oxygen is to be given. If available, all cyanosed, all gray-blue patients, all shallow breathing patients, should have oxygen. A nitrous oxide machine for giving anesthetics is an excellent means of administering oxygen under pressure.

Water in some form should be given, preferably by the mucous membranes. Sodium bicarbonate in a 5-per-cent solution and combined with 5-per-cent glucose is most effective; but in acute grave cases from 2000 to 4000 Cc. of fluid should be given each twenty-four hours. Water intravenously is rapidly eliminated from the body. Water absorbed through membranes or tissues is retained in much larger amounts. Water, to be most useful, should have a biologic pass.

The damaging effect of the low blood-pressure is prevented or overcome (1) by elevating the foot of the bed; and (2) by early transfusion. The Bayliss solution of gum acacia may be used. It has the advantage of being more readily available

than blood. Under war conditions donors for blood transfusion are usually numerous among the severely wounded patients.

One of the greatest errors is to allow a patient to remain in a state of low pressure in the hope that he will improve through his own resources, reserving a blood transfusion to be used as a last resort after it has become obvious that the patient is going to die. This is the same faulty logic that was once used in dealing with appendicitis. When the indication for operation in appendicitis was supposed to be a clammy, pulseless state, when the patient was dying, surgical treatment became almost discredited. It is equally illogical to wait for impending dissolution in shock before improving the circulation. Treatment should not be deferred until the inaugural state of death is established.

Another method of treating shock which is not generally applicable to war conditions is narcotization with morphine, giving morphine on the same scale as in the Alonzo Clark treatment of peritonitis—*i.e.*, keeping the patient under the morphine so completely that the respirations are cut down to about twelve to fifteen per minute and the patient is deeply asleep. During this time between 2000 and 3000 Cc. of normal saline solution should be given subcutaneously. When properly carried out, excellent results may be obtained by this method; however, it should never be employed if there is cyanosis, and never routinely, and never except under expert supervision.

THE OCCURRENCE OF ACETONURIA IN CHILDREN.

GARLAND, in the *Archives of Pediatrics* for August, 1919, states:

1. Acetone was found in the urine of 127 or 17.3 per cent of the cases submitted to his service.

2. Its occurrence was much more frequent in the respiratory diseases than in other diseases.

3. Although 127 patients had acetone in the urine, out of this number only two had true acidosis. Acetonuria, therefore, is a common clinical finding, whereas acidosis is relatively rare.

4. Acetone is more frequently found in the urine during fevers than at other times.

5. Since acetone is formed from fat during the early stages of respiratory diseases especially, it is wise to give a diet which is low in fat and high in carbohydrates, thus diminishing the possibility of acetone formation. Large amounts of liquid are also especially indicated to wash waste products out of the body.

ACUTE NEPHRITIS IN CHILDHOOD.

HILL, in the *Journal of the American Medical Association* of December 6, 1919, states that it is especially important to keep a child with actue nephritis warm, and in the hospital he always keeps them wrapped in an extra blanket and takes especial care to keep them out of draughts. It goes without saying that bathing and proper care of the bowels are of great importance. In the cases without edema he uses licorice powder as a laxative, and in those with edema, when free watery catharsis is desired, magnesium sulphate. It is surprising to see how well most children take magnesium sulphate; they do not seem to object to it as much as do adults. Sometimes the best results can be obtained with it if it is given in small, frequent doses—that is, one teaspoonful every hour for five or six doses.

Diuretics play a very small part in the treatment of acute nephritis, and most authorities are agreed that the stronger diuretics, such as the caffeine derivatives, may do more harm than good in this condition. There is no objection, however, to giving such mild diuretics as potassium citrate or cream of tartar. Iron is always indicated in acute nephritis of any type, as there is a considerable daily loss of blood in the urine, and anemia rapidly develops. For children, he prefers the saccharated ferric oxide in doses of from 3 to 5 grains three times a day. He has used the hot

pack or hot-air bath to promote sweating, in a few cases with extreme edema, but in the vast majority of patients the edema can be controlled by dietary measures and purgation. In severe cases the hot-air bath is used as an adjunct to these.

Drugs, with the exception of laxatives and cathartics, are of comparatively small value in the treatment of acute nephritis, and far more important is the general care of the patient, particularly as regards the diet and the water intake.

In acute nephritis we are dealing with acutely inflamed kidneys. It should be our aim, in accordance with general therapeutic principles, to rest these irritated organs as much as possible, and to protect them from the irritating end-products of metabolism. Foodstuffs may be divided into four groups: fat, carbohydrates, protein, and salts. The fats and carbohydrates are not excreted through the kidneys, but are burned in the body; therefore, free administration of fat and carbohydrate is permissible in acute nephritis. The kidney's chief function is to excrete the end-products of protein metabolism and some of the salts, particularly sodium chloride. Consequently, in any dietary measure designed to spare the kidneys, it is necessary to consider these two substances.

It is not desirable to put a patient with acute nephritis on a strictly protein-free diet, which would probably do him more harm than good, as a certain amount of protein is necessary to repair the wear and tear of body tissue, and to keep the patient in nitrogenous equilibrium. Not a great deal is known of the exact protein requirements of children, but probably the old figure of from 1.5 to 2 gm. protein per kilogramme of body weight is near enough to the actual requirements for practical purposes. The child should have, then, not more than 2 gm. of protein per kilogramme of body weight. For practical purposes, in many cases, it is quite sufficient to omit meat, eggs, fish and meat soups from the diet, and to make it up of cream, milk, cereals, bread, potato, etc. In hospital cases he usually roughly calculates the protein and caloric value of the diet, according to the accompanying table of values.

CALORIC VALUE AND PROTEIN CONTENT OF ORDINARY FOODS.

Table used in Children's Hospital, prepared by Dr. J. L. Morse.

Food.	Calories.	Grammes of Protein.
Whole milk, 1 quart	670	34.0
Skim milk, 1 quart	400	35.0
Gravity cream, 1 pint	860	14.0
Buttermilk, 1 quart	360	35.0
Whey, 1 quart	260	9.0
Beef juice, 1 ounce	10	2.0
Crackers, 1 ounce	120	3.0
Bread, 1 slice	75	3.0
Zwiebach, 1 slice	120	3.0
Shredded wheat biscuit	105	3.0
Rolled oats (cooked), 1 tablespoonful	35	1.5
Cream of wheat, and most other cereals (cooked), 1 tablespoonful	40	1.5
Potato, size of large egg	70	2.0
Macaroni, 1 tablespoonful	30	1.0
Egg—		
Whole	72	7.0
Yolk	60	4.0
White	12	3.0
Meat, fish, 1 ounce	60	7.0
Bacon, 1 slice = ½ ounce	90	1.5
Butter, 1¼-inch cube = 1 ounce	225	...
Sugar—		
Milk, 1 round tablespoonful	60	...
Cane, 1 round teaspoonful	25	...
Green peas, Lima beans, 1 tablespoonful	40	3.0
Carrots, squash, turnip, beets, onions, 1 tablespoonful	30	1.0
Orange (medium sized)	50	...
Apple (medium sized)	70	...
Banana	115	2.0
Prunes, 4 without sugar	30	...

In the cases without edema, it is quite sufficient to prohibit any salt cellar on the tray. The bread and butter does not need to be salt-free, nor is it necessary to omit salt when cooking the vegetables and cereals. In the edematous cases a more rigid salt restriction is necessary, as the most generally accepted view of edema in acute nephritis is that it is brought about by a primary salt retention with secondary water retention. In this group of cases the butter should be unsalted, and the bread, cereals and vegetables should be cooked without salt. Such a diet is called a "salt-free" diet, but the designation is not strictly accurate, as most of the ordinary foodstuffs contain a small amount of salt. This is not enough, however, to do any harm. The employment of a "salt-free" diet is one of the most effective methods there is of getting rid of nephritic edema, especially when its use is combined with free catharsis and fluid restriction.

In the non-edematous cases no restriction of water is necessary, and indeed it is desirable to give a reasonably large amount of water, as it helps in diluting and eliminating toxins. In these cases the kidney is usually able to handle water, and about 48 ounces of fluid a day is what he likes to have patients take. If the urinary output becomes much less than about two-thirds of the intake, and the patient begins to gain in weight, the amount of water should be reduced.

The edematous patients need to be restricted considerably as regards the fluid intake. It is rarely advisable to try to give less than 12 ounces of fluid a day, as there is too much suffering from thirst. Most children, in ordinary weather, can get along very well for a limited period of time on from 16 to 20 ounces of fluid a day. If the patient handles water well, and there is no increase in weight or edema, the fluid intake may be gradually raised. It is important to weigh these patients every day, as often there will be an increase in weight, due to waterlogging, that is not apparent on the surface of the body. It is also important to keep a daily record of the fluid intake and output, and to observe closely their relationship.

A SIMPLIFIED METHOD FOR INDUCING THERAPEUTIC PNEUMOTHORAX.

In the *Journal of the American Medical Association* of December 6, 1919, ROSENBLATT states that he has devised a method by which the gas can be introduced through the anesthetic needle without, at any time, opening the lumen of the needle to the atmospheric air and without any difficult manipulation. His method consists in inserting between the syringe and needle that are used for injecting the local anesthetic a two-way stop-cock similar to the one sometimes used for aspiration and ejection of pleural effusions. One end of this stop-cock fits the point of the syringe and the other end fits the needle. A branch extends from the side of the stop-cock to which can be attached the rubber tubing leading to the gas apparatus. The stop-cock is also provided with a two-way valve so arranged that when the valve is turned one way the needle communicates with the syringe for drawing up and injecting the local anesthetic, and when it is turned the other way the needle is communicating with the side-branch leading to the gas apparatus. The stop-cock can be made to fit any type of syringe and needle, but he found it best to use an all-glass Lüer syringe and a sharp steel needle, 1¼ inches long and from 21 to 22 gauge.

The technique is very simple. First, the stop-cock is set so that the needle is communicating with the syringe, and the local anesthetic is drawn up and injected in the usual manner. When the operator thinks he has pierced the parietal pleura, the rubber tubing leading to the gas apparatus is connected to the side-branch of the stop-cock, and then a quarter turn of the stop-cock valve puts the needle in communication with the rubber tubing leading to the manometer and gas bottle, so that the manometer can be read and the gas introduced.

The syringe may be left in place, but he found it advisable to withdraw partly the piston of the syringe as soon as the anesthetic is injected, so that the fluid that remains in the lumen of the needle is aspirated back into the barrel of the syringe, leaving the needle clear. Moreover, this simple procedure of partly withdrawing the piston of the syringe frequently gives us valuable information as to where the point of the needle is located. If the point of the needle is engaged in tissue, as soon as the piston is released it will be drawn back forcibly into the barrel of the syringe, as if the finger were held over the point of the syringe while the piston is withdrawn. This usually indicates that the needle is not deep enough. If the piston falls back by gravity, the point of the needle is in a free space, either the pleural cavity or in the lung; and if satisfactory manometric oscillations cannot be obtained, the indications are that the needle is too deep, and it

should be withdrawn somewhat. Should blood come up into the syringe when the piston is partly withdrawn, the point of the needle is in a blood-vessel, and then it is best to withdraw the needle and insert it in another place.

He has been using this method for about two years in primary operations as well as in refills, having performed 35 primary operations and about 350 refills, and he has found it perfectly satisfactory. Among the primary cases he has had a number that were very unpromising from the standpoint of physical signs and roentgenographic findings; yet he has been successful in all but one case, and in the great majority he succeeded in inducing pneumothorax with the first attempt.

There are two objections that might possibly be raised to this method as well as to other methods in which a small, sharp needle is used. First, some claim that a sharp needle is more likely to penetrate and wound the lung than a large, dull needle; secondly, this needle has no obturator and one may think that it is easily blocked up. As a matter of fact, however, even if a small needle should pierce the lung substance, it is very unlikely that lung tissue will be damaged or that spontaneous pneumothorax will result, while a dull, heavy needle is more likely to cause laceration if it pierces the lung. Furthermore, even those who use a large needle for introducing gas also use a small, sharp needle for injecting the anesthetic, and this is practically what the entire operation consists of with his method. As to the absence of an obturator, if the needle is small and sharp it is not likely to be blocked up with tissue, especially in this case in which the anesthetic fluid, being forced through the needle, acts like an obturator. Should the needle become blocked up with a drop of blood, it can easily be dislodged by moving the piston gently up and down, or a small amount of anesthetic fluid may be retained in the syringe and then forced through the needle whenever it becomes necessary to clear it. At any rate, he has hardly ever had any trouble due to a blocked needle.

The advantages of this method over the two-puncture method are obvious:

1. The operation is rendered much simpler and easier.

2. The amount of trauma to the pleura is greatly minimized, and so pleural shock is less likely to occur. Though the cause in pleural shock is not well known, yet judging from what is known about shock in general, it is reasonable to suppose that pleural shock is less likely to occur when the pleura is punctured with a small needle than when it is pierced with a dull trocar and cannula.

3. Subcutaneous emphysema is less frequent.

4. The patients do not dread the operation so much when this method is used, as they consider it of a minor character, and it is well known that the state of mind of the patient is an important factor in the success of the treatment.

SIMPLE METHOD FOR TREATMENT OF BURNS.

McGEARY, in *Minnesota Medicine* for December, 1919, states that a paraffin preparation has been used as the routine treatment most successfully for burns at the Minneapolis City Hospital and gives the formula as follows:

1. Resorcinol	10
2. Olei eucalyptii	20
3. Olei olivæ	50
4. Petrolatum	250
5. Paraffin	670

Melt 4 and 5 together. Dissolve 1 in alcohol and add to 4 and 5 while the latter is hot, to drive off the alcohol. When cool add 2 and 3.

CARDIAC DIAGNOSIS.

CONNER, in the *American Journal of the Medical Sciences* for December, 1919, states that the examination of the cardiovascular apparatus of immense numbers of soldiers by specially qualified medical officers has resulted in a distinct gain to our knowledge of certain phases of cardiac

diagnosis. This gain has been chiefly in three directions: a better appreciation of the extent and the frequency of normal variations from the conventional physical signs of the heart; the recognition of the importance and frequency of the syndrome known as the irritable heart of soldiers or the effort of syndrome; and an increased accuracy in the diagnosis of the mild forms of valvular disease, especially of mitral insufficiency and mitral stenosis.

Variations from the conventional physical signs of the heart are extremely common in normal individuals and affect every type of physical sign. Of these the systolic accidental or functional murmurs heard at the apex and in the pulmonic area are the most important and the most likely to lead to errors in diagnosis. It is believed that fully nine-tenths of all apical systolic murmurs belong to this class of accidental or functional murmurs.

The neurosis known as the irritable heart of soldiers has been the most frequent and much the most important heart disorder encountered during the war. Because of the pronounced cardiac symptoms associated with it and the suggestive physical signs it is very likely to be mistaken for some organic disease of the heart, especially for mitral insufficiency or mitral stenosis. The knowledge gained of this disorder during the war indicates that only a minority of the cases have their origin in conditions peculiar to war, and that the condition must have existed, and been far from rare, in civil life in spite of our failure to recognize it.

The army examinations have demonstrated that the mild grades of valvular disease, which were almost the only types encountered, show a cardiac reserve power well within normal limits and are remarkably free from subjective symptoms. In this respect they offer a striking contrast to the effort syndrome in which such symptoms are usually pronounced.

The inclination to diagnosticate mitral leakage upon the presence of an apical systolic murmur alone is to be resisted. In the absence of evidences of cardiac hypertrophy or of a history of definite attacks of rheumatic fever it is doubtful if one is justified in making the diagnosis even though the murmur have those features of transmission and quality which are supposed to be characteristic of that disease.

In view of the danger of mistaking cases of soldiers' heart for those of mitral stenosis the latter diagnosis should not be made unless an unmistakable and characteristic presystolic murmur be present.

The extraordinary rarity of cases of syphilitic disease of the aorta and heart among the men examined seems to indicate that the clinical manifestations of syphilis in the aorta and heart almost never appear before the thirty-fifth year.

THE CAUSATION AND TREATMENT OF RICKETS.

PRITCHARD, in the *British Medical Journal* of November 15, 1919, states that the treatment of rickets naturally resolves itself into prophylactic and remedial measures. Prophylaxis is concerned with the avoidance of those malhygienic conditions which favor the development of various forms of malnutrition. Correct dieting is essential to avoid catarrhal conditions of the bowel, intestinal toxemias, and insufficiency diseases, all of which by their respective routes lead to the common goal. Food in excess, even though otherwise beyond criticism, is as dangerous as unsuitable food itself, for in the long run it necessitates a short-circuiting of the metabolic processes and the production of acids of large molecular size, such as uric, oxalic, butyric, lactic, propionic, and to some extent of such powerful acids as sulphuric and phosphoric, all of which must be neutralized at the expense of ammonium and other alkali reserves of the blood, including calcium. Any condition which interferes with oxidation will similarly restrict the completeness of the metabolic processes, and among them must be included want of fresh air, mechanical obstruction of the respiratory passages by adenoids, embar-

rassments of the respiratory movements, as well as all other conditions which lead to anoxemia. Want of stimulation of the skin surface by cool air, good ventilation, or baths, will similarly restrict the oxidation processes.

Want of exercise—as, for instance, by the limitation of muscular activities, such as those concerned in playing, kicking, rolling, and walking—will also predispose to the same results; in fact, muscular exercise is the great prophylactic against rickets. Unfortunately, in the majority of cases of malnutrition which terminate in rickets, active exercise is limited owing to nervous depression, nuclear degenerations, and muscular debility, but none the less every opportunity to insure free exercise must be provided for all healthy infants. No matter how correctly fed, or how good the other hygienic conditions, infants who are swaddled up in tight clothing so that the movement of the limbs is restricted invariably become rickety, unless the diet is correspondingly reduced.

The avoidance of infections, catarrhal and otherwise, is an essential element in prophylactic treatment, but more easily enjoined than carried out. In healthy, well-fed infants, infections, though they inevitably occur, soon run their course, and it must be remembered that it is chronic and not short-lived acute attacks that lead to the chronic conditions of acidosis which deprive growing bones of their mineral elements.

As for remedial treatment, this depends largely on the correct diagnosis of the cause of the condition, on the treatment of acidosis itself, and on the management of the complications arising from the softening of bone and of the emergencies which are secondary to the acidosis.

The more common causes of the acidosis of rickets having been indicated, it is unnecessary to describe in detail the specific measures called for in each particular case. The treatment of the acidosis is by no means a simple task, especially in severe cases with air hunger, or Cheyne-Stokes breathing, tetany, laryngismus stridulus, or convulsions. There are, however, certain important indications, which are as follows:

1. To restore the reduced alkali reserves of the blood.
2. To insure a free supply of oxygen, and relieve the embarrassment of the respiratory centers.
3. To raise the blood-pressure.
4. To promote the excretory functions of the kidneys.
5. To suspend temporarily the intake of food.
6. To restore muscular tone by massage and shower baths.

These with the exception of No. 6 are the measures which have been empirically proved to be efficacious in such extreme cases of acute acidosis as occur in cholera infantum, diabetic coma, and uremic conditions.

The reduced alkali reserves and the fall in blood-pressure can both be relieved by the intravenous or subcutaneous injection of isotonic saline, or, better, by a 5-per-cent solution of sodium bicarbonate. Oxygen can be supplied by inhalations, best by Haldane's continuous method (see *British Medical Journal,* July 19, 1919, p. 70).

The excretory functions of the kidneys can be promoted by such cardiac stimulants as camphor, digitalis, strychnine, alcohol, caffeine, etc., or by such direct stimulants as scoparius and turpentine.

The treatment of deformities and mechanical disabilities due to softness of bone need not here be considered beyond referring to the usefulness of splints for the correction of deformities of the legs, if these splints interfere with the one grand prophylactic—namely, the taking of exercise.

The treatment of emergencies, such as laryngismus stridulus, convulsions, and tetany, is as a rule satisfactory and immediate, if conducted on rational lines directed to counteract the effects of a severe acidosis.

In all cases of rickets in which the nervous symptoms are prominent Pritchard has found that phosphorated cod-liver oil (1 in 10,000) affords most excellent results.

The phosphorus may help to restore degenerated nerve cells. He cannot regard it as a general specific for all forms of rickets, as has been claimed by certain German authorities.

In conclusion, he emphasizes that all varieties of malnutrition from whatsoever causes arising in infants ultimately lead to a condition of acidosis and the characteristic bony changes. Each variety has its own etiology and requires a special line of treatment.

ALCOHOL AS A REMEDY.

THEWLIS, in the *Medical Review of Reviews* for December, 1919, states in his conclusions:

1. Many old persons have taken a certain amount of alcoholic stimulants each day for several years.

2. Intoxication is rarely seen in the aged.

3. When ill, no matter what the cause, the aged should take their regular amounts.

4. It is often disastrous to discontinue an old man's habit, even if it is a bad one.

5. Whisky, beer or wines will improve digestion in the aged. Also they are of great value in the prostration attending senile pneumonia, nephritis, diabetes.

6. Must be used in its full physiological action. Physicians ordinarily use too small dose.

7. Of great value in some cases of diphtheria with sepsis; alcohol has saved many patients after large doses of antitoxin have failed.

8. Alcohol taken for the relief of an acute disease will not form a habit.

9. Alcohol should be administered with food.

10. Of great value in senile debility and will relieve many symptoms like sleeplessness, numbness, cramps, etc.

11. "Wine is the milk of old age."

12. Alcohol is indispensable in treating many of the maladies of old age.

13. Legislation should not interfere with doctors obtaining alcohol for their patients.

14. Thewlis says his purpose is not to plead for or against prohibition, nor is it advocating freer use of alcohol by every one. It is a pleading for less restriction to the physician of a remedy, a weapon to combat diseases, that rightfully belongs to a doctor who spends his life at the bedside of the sick.

RED MERCURY IODIDE, A REMARKABLE ANTISEPTIC.

MACFARLAN, in the *Charlotte Medical Journal* for December, 1919, states that the relative antiseptic value of the commonest germicides has been conclusively established, and a preference now should only be expressed on account of the various adjunctive effects of the drugs selected.

The table compiled by William H. Park, of the New York City Health Laboratory, is very comprehensive and gives at a glance the relative germicidal merits of the common antiseptics.

Table of Relative Antiseptic Values.

Alum	1:222
Alum acetate	1:6000
Amm. chloride	1:9
Boric acid	1:143
Calc. chloride	1:25
Calc. hypochlorite	1:1000
Acid carbolic	1:333
Chloral hydrate	1:107
Cupric. sulph.	1:200
Ferrous sulph.	1:200
Formaldehyde (40 per cent)	1:10,000
Hydrogen peroxide	1:20,000
Mercuric chloride	1:14,300
Mercuric iodide	1:40,000
Formaldehyde (pure)	1:25,000
Silver nitrate	1:12,500
Thymol	1:83

By this table the red iodide of mercury appears by far the strongest. It is with a solution of this salt that the following notes deal:

Red mercuric iodide, HgI_2, is readily soluble in aqueous or alcoholic solutions of potassium iodide and a new salt is formed, the double iodide of mercury and potassium, K_2HgI_4. If the solvent solution is too weak in KI, the yellow crystals of this salt separate out. For practical purposes, and to insure its permanence, approximately twice as much KI as HgI_2 is added. The strength of the solution is roughly judged by the

amount of red iodide of mercury used, for the excess of KI is actually an indifferent factor. For a one-per-cent solution the following formula will suffice:

℞ Hydrargyri iodidi rubr., 1 gm.;
Potas. iodidi, 2.5 gm.;
Aquæ destil., 100 Cc.

The two important factors in having a permanent solution are the use of distilled water and plenty of KI.

Experiments were made to see the exact antiseptic value of the solution, with the following results:

In the first a hardy strain of staphylococci was used, and these found it impossible to exist in media where the double iodide was present in dilution of 1:80,000. In 1:100,000 media three small colonies were observed in one plate, and in another of the same dilution a scattered half-dozen were present. Above these dilutions the cultures became progressively more prolific.

Again, with a strain of typhoid bacilli, approximately the same results were obtained. In the neighborhood of 1:80,000 the solution was germicidal; from 1:80,000 to 1:100,000 growth was inhibited.

As to practical use, there is every evidence to believe, and the results are assuring, that this antiseptic is as strong in practice as in experiment. As may be imagined, its use was first tried on microbic affections of the skin, and upon these it was found to have a marked effect. Long-standing acne, cryptogenic infections, erysipelas, and, in fact, the whole realm of superficial skin infections respond remarkably to its action. On erysipelas the most rapid results are obtained, a fact which has been verified in repeated instances. When the deep-seated inflammations, such as boils and felons, are met with, there seems to be much evidence of some power of penetrability which the drug possesses. A wet compress applied in such circumstances alters entirely the prolonged progress of these cases. The indurated, tense tissue rapidly subsides in its acute inflammation and the pus begins to "point." A one-per-cent solution is to be considered very powerful in such cases, anything stronger being both unnecessary and liable to irritate. The tendency with this antiseptic is to use it too strong, but this is, in a measure, safeguarded by its comparatively low irritating qualities. The solution being clear, colorless, and odorless, the senses are deceived into presuming potency. These points are well understood when it is realized that a dilution of one in eighty thousand is germicidal, and that a one-per-cent solution used on the skin will seldom cause any irritation.

It is this last fact that makes this drug such an ideal antiseptic for surgical clinics where hurried, careless work is at times seen. There is little danger of harm being done from the making up of the solution from a one-per-cent stock jar, for at least nothing stronger than one per cent can be made, while, on the other hand, there is still wide latitude for dilution. Much more could be said in enumerating different conditions where this antiseptic can be applied. Suffice it to add that it is thoroughly reliable in whatever germicidal capacity it may be used. A most casual trial will show its virtues, and to this trial its remarkable qualities most earnestly recommend it.

[Red iodide of mercury has been used for years as a powerful antiseptic and germicide.—Ed.]

THE EFFECT OF PYRETICS AND ANTIPYRETICS ON CATALASE PRODUCTION.

Burge, in the *Journal of Pharmacology and Experimental Therapeutics* for October, 1919, states:

1. Tetrahydro-B-naphthylamin, adrenalin, caffeine, and sodium chloride stimulate the alimentary glands, particularly the liver, to an increased output of catalase, which is offered in explanation of the increased oxidation produced by these substances and hence for the accompanying fever in so far as the increased heat production is involved in this.

2. Chloroform decreases catalase both by decreasing its output from the liver and by

direct destruction of this enzyme. Ether decreases catalase principally by direct destruction of the enzyme without disturbing the liver function so much as does chloroform. Acetanilide, quinine and phenacetine produce a slight decrease in catalase by decreasing its output from the liver.

3. Chloroform and ether lower temperature in so far as decreased oxidation is involved in this by decreasing catalase, the enzyme principally responsible for oxidation in the body. The fact that acetanilide, quinine and phenacetine have little or no effect in decreasing catalase suggests that their mode of action in lowering temperature is not due to a decrease in oxidation.

THE ATROPINE TREATMENT OF PYLOROSPASM AND PYLORIC STENOSIS.

In the *Archives of Pediatrics* for October, 1919, HAAS states:

1. Hypertrophic pyloric stenosis is probably only an advanced degree of pylorospasm.

2. Both are manifestations in the syndrome of hypertonia (hypertonic infant).

3. The etiology is probably a disturbance in the physiological action of the vegetative nervous system.

4. The vegetative nervous system is made up of two parts, the autonomic and the sympathetic; normally in balance, in this condition there is no overaction of the autonomic or vagotonia.

5. This does not gainsay the occasional existence of true organic stenosis of the pylorus.

6. Despite the brilliant results of many surgeons by the Rammstedt operation, in this condition an operation should be rarely required, and only performed after atropine has been given a trial.

7. Atropine properly used has been regularly effective in producing a cure.

8. At the present time the weight of authority would seem to indicate that hypertrophic pyloric stenosis and pylorospasm are two definite clinical entities.

In favor of this view is the existence of a cartilaginous hard mass in the pylorus in cases of stenosis, and the persistence of this mass long after a cure has been obtained by operation or otherwise.

(*a*) Against this view is the experience of the last four years; all cases of pylorospasm, including four for whom operation had been advised, responded to treatment by atropine. A case of complete stenosis responded equally well.

(*b*) Ransohoff and Woolley held an autopsy on an infant at seven and a half months which had had a Rammstedt operation at the age of two weeks, when a cartilaginous hard mass existed. At the autopsy this was absent and the pylorus patulous.

(*c*) Rachford states that if the pylorus sphincter is so cut as to leave the orifice patulous and prevent muscular spasm of these fibers the pyloric tumor disappears.

(*d*) Strauss, in a dissection of 65 tumors at operation, showed that the tumor was absolutely proportionate in size to the age of the infant, "which demonstrates that the tumor must be a progressive developmental affair."

(*e*) The absence of fault in the arrangement of the normal histologic elements of these tumors speaks loudly in favor of a functional creation.

(*f*) Rogers states that in fatigue the inhibitory impulses of the sympathetic system fail, and the vagus, then overacting, causes hypersecretion, hyperacidity, and hypermotility or pylorospasm.

9. Among the arguments used against medical treatment is the sudden death, which not infrequently occurs. These are usually thymus deaths and occur in cases operated upon as well as those medically treated.

10. Atropine is the logical treatment in these cases owing to its paralyzing effect upon the vagus nerve endings.

11. Certain facts must be borne in mind regarding atropine.

(*a*) The inconstancy in value, resembling digitalis in this respect.

(*b*) Its rapid deterioration.

(*c*) It must be used in sufficient dosage to be effective.

12. A common dose of atropine for an infant of this type from a few weeks to a few months of age is 1/50 to 1/25 of a grain in twenty-four hours, with an extreme of 1/16 of a grain divided among the day's feedings, a 1:1000 solution being used, beginning with one drop and increasing rapidly until effective.

13. The most frequent toxic symptoms are flushing, mydriasis, dryness, which disappear promptly when the drug is withheld. Haas tells us there is no danger even when such symptoms present themselves.

DRUGS AFTER CHLORINE GASSING.

In the *Journal of Pharmacology and Experimental Therapeutics* for October, 1919, BARBOUR states that no evidence has been obtained favorable to the employment of subcutaneous injections of calcium lactate in edema of the lung. Calcium was tested in twenty-three, quinine in eight, and atropine in four gassed dogs, without a single recovery. It is improbable that any of these substances can be used to advantage in this condition.

INOCULATION AGAINST INFLUENZA.

SALVAT, in the *British Medical Journal* (Epitome) of November 29, 1919, states that he uses a prophylactic vaccine similar to that of the British War Office, but containing in addition a recently isolated parameningococci. The vaccine was used in about 5000 cases, four doses being given of 50, 100, 150 and 200 millions respectively. In a group consisting of about 4900 Spaniards there was no fatal case of influenza, or even of severe bronchopneumonia; whereas in a group of about fifty persons of British nationality there were five complicated cases and two deaths. Salvat attributes this occurrence to the fact that the attack took place after the patients had left the country, which suggests that the vaccine should be prepared in the patient's own country. He also attaches a certain importance to the ethnic factor, certain races being more vulnerable than others.

A SUGGESTION FOR THE IMPROVEMENT OF OBSTETRICS.

RUSHMORE and PAINE (*Boston Medical and Surgical Journal*, Nov. 20, 1919) present the following scheme for dealing with the problem of the obstetric poor and suggest its deliberate adoption on an extensive scale. They quote from the report of the Subcommittee on Prenatal Care and Obstetrics appointed to meet emergencies due to war-time conditions. The report reads in part as follows:

"One of the most striking deficiencies in hospitals is the lack of adequate facilities for caring for women at the time of confinement. Ever since it was realized that puerperal infection is wound infection, the opinion has gained ground that obstetrics essentially involves surgical risks and surgical procedures; but hospital facilities have not been increased for this as they have been for other surgical conditions. The first requirement, then, is adequate hospital facilities for all confinement cases which for any reason need hospital care. Every municipal hospital should have a well-equipped obstetrical department."

But most confinement cases, even among the poor, are cared for at home and can be cared for at home. The needs of these patients constitute the problem to be solved.

How is care provided for women who can pay little or nothing? It is provided by the physician as a private individual or employed by the municipality or other governmental organization; by the midwife, official or unofficial; or by the charitable institution, public or private.

It is in the charitable institution that we find conditions which are most nearly satisfactory, and in certain lying-in hospitals with out-patient clinics, the care of the patients leaves little to be desired. The system is well known. The patient presents herself at the clinic. She is examined carefully and

thoroughly. She is visited at her home by the nurse, who sees that everything needed at confinement is in the house. She visits the clinic for further examination and advice. When she falls into labor, word is sent to the hospital and her record is reviewed. Attendants from the hospital, usually two undergraduate medical students, go to her home, sometimes accompanied by a nurse. Reports are sent to the physician at the hospital, on printed forms covering all important points to be noted in the patient's condition. Preparations are made for delivery, and if labor is not progressing satisfactorily, the patient is seen at once by the resident physician. If necessary, the patient is transferred to the hospital, or a member of the visiting staff is called so that the patient gets adequate care throughout.

The resident physician at the hospital knows the patient's condition and the progress of the labor through the frequent reports sent to him. He goes to her when he is needed, and when he leaves she is in the hands of competent observers who can send for him again if necessary. Following the confinement at the home, there are visits by the doctor, the medical students and the nurse until the patient is discharged. The results of this system are well known. It works well on the whole, and in some institutions has given excellent results.

There exists a serious difficulty in the way of indefinite extension of this system because there are not enough medical students in some cities, and in cities without medical schools it cannot be used at all.

The scheme proposed for discussion by the committee is the substitution for the medical student of graduate and undergraduate nurses, preserving in other respects the system now in use in many hospitals.

There would then be in a municipal or other hospital an obstetrical department as a center to which all cases needing hospital care could be sent. Prenatal clinics would be established here and at substations in the district if necessary. Patients at their homes would be cared for by physicians from the hospital, who would be assisted by nurses as they are now assisted by medical students. If transportation were provided by automobiles the number of cases seen and cared for would be greatly increased, for a given amount of effort.

In a city of about 600,000 inhabitants with about 20,000 births annually, there would be approximately 5000 cases in the group which would be cared for by such an institution. The total cost for doctors, nurses, ambulances, and supplies, including overhead charges and upkeep, would be less than $20 per patient cared for at her home.

Certain advantages of the proposed scheme may be noted:

It may be employed in communities in which no medical school exists. These are often the communities in which the need for adequate care is the greatest.

It will greatly increase the number of women who get adequate prenatal and obstetrical care.

It will tend to improve the standards of obstetrical practice. Hospitals with obstetrical departments will become much more numerous. Physicians who are to be in charge of these departments will be selected because of their greater proficiency and by additional experience will make further progress. House officers will have more experience and better training and thus be better fitted when they enter independent practice.

It will greatly increase the supply of obstetrical nurses.

Various solutions of the problem are presented, as, for example, maternity insurance and the training of more midwives and the better training of physicians. But not one of these gets at the heart of the matter. The only adequate solution is through an institution, not supported by the patients, whereby the community assumes a distinct civic responsibility. Invaluable as the privately endowed institution may be in certain respects, the community should feel its responsibility in the care of the obstetric poor.

One difficulty in the solution of the problem lies in the extreme range of service required. One case needs the most competent obstetrical care to secure anything approaching a favorable result; another is almost sufficient unto itself, and it is just this sufficiency in some cases that leads to the obstetric tragedies in others.

The fundamental requirements in any scheme are: (1) Skilled supervision throughout pregnancy, labor, and the puerperium. (2) A delivery service which is so flexible that the patient receives just the attention needed. In one case, a medical student, a nurse, a midwife, or a member of the family might safely supply that delivery service. In a sense, to employ a highly trained obstetrician would be inefficient. In another case, only the highly trained obstetrician can undertake the management. (3) The plan must include hospital facilities for some of the patients (approximately five per cent of all cases), but preparation must be made to care for a large proportion of the cases in their homes, where for various reasons the larger number of deliveries will occur. (4) Further, the plan must provide adequate nursing throughout; this can scarcely be emphasized too much.

EPITHELIOMA OF SOLAR ORIGIN.

DUBREUILH and MCCOY (*Urologic and Cutaneous Review,* November, 1919) point out that it is necessary to distinguish among the epitheliomata of the face three principal types or groups: 1st, the cancroid of the lower lip, which is a cancer of the mouth; 2d, the rodent ulcer, closely corresponding to the basal-celled epithelioma of Krompecher; 3rd, the papillary or keratosic epithelioma, corresponding to the spindle-celled epithelioma of Krompecher.

The authors observe that keratoma of the face or epithelioma which follows is most common in patients who pursue a life in the open exposed to the sun.

As to rodent ulcer, most of the cases observed worked in the shade. The rodent ulcer begins ordinarily on a healthy or normal skin, in the form of a salient, hemispheric nodule of a yellowish-rose color, semitransparent or sometimes pigmented, is characterized by its special progress and appearance, or by its location, which is nearly always on the face and most often in the vicinity of the internal angle of the eye. The evolution is always slow, it does not infiltrate the tissues to a great distance, does not produce metastasis readily, and never forms a tumor, if one has not been in existence before the beginning of the ulceration, and then that tumor is small, almost never exceeding the volume of a pea. It is finally characterized by its histologic structure.

The papillary keratosic or spindle-celled epithelioma almost never begins on a healthy or sound skin, but has its beginning on a diseased integument and notably on a (so-called) senile keratoma. It is easy to follow clinically the steps of the transformation from a simple keratoma to a manifest epithelioma.

The (so-called) senile keratoma, which is potentially a carcinoma, is part of a syndrome, but more complex. The senile keratosis begins by a pigmentation which, instead of being diffused like the well-known sun tan, is in the form of small macules of variable size and tint. This, then, is in its beginning a small spot of tan, but it is never very dark, and never as deeply colored as the brown macules of xeroderma pigmentosum of children.

Between the brown macules are shown achromic macules of variable size and number. On this spotted field the skin is often atrophic and thin. This condition has a particular predilection for the lower eyelids, but may be located on any exposed part. One can sometimes recognize that the achromic and atrophic areas are consecutive to a spontaneous cure of a hyperkeratosic plaque. Among these brown and white spots, but above among the latter, one often finds little groups of dilated veins.

The senile keratoma is the most important manifestation of the syndrome, it is

constituted by a thickening of the epidermis, and takes the form of a slight salient, grayish or brownish in color, which at the beginning can, perhaps, be easily mistaken for the pigmented macules. This hyperkeratosis has a variable structure. Often it is soft, greasy, flaky, and friable, easily detached, leaving then a surface of a greasy aspect. Again it may be grayish, dry, hard, adherent, with a rugose surface, and is difficult to tear off without drawing some drops of blood. The thickness is not less variable, ranging from a covering quite thin to an accumulation of greasy friable or dry and hard scales, from 1 to 2 millimeters in thickness. Altogether, these alterations give to the skin an irregular, checkered aspect in shades of brown, gray, and red. In this ensemble the skin is wrinkled, thinned, atrophic, flabby, and deprived of elasticity.

The same exact syndrone may be found on the dorsal surface of the hands, with the exception that the hypertrophic plaques have a different aspect.

The senile keratoma of the hands forms plaques very dark, hard, thick, and projecting, limited in area and solidly adherent. The horny masses range in width from the thickness of a pea to the width of 50 centimes, and a thickness of as much as 1 to 2 millimeters. Their surfaces are level and the borders abrupt, and they have the appearance of being glued to a healthy skin. They can be torn off only with difficulty and not without tearing the adjacent and underlying skin. They resemble in striking fashion pieces of tree bark glued to the skin of the back of the hands, which, like that of the face, is faded, thinned, and wrinkled.

This description corresponds to the classic notion of a senile skin, but it must be remarked that this appearance of senility is limited to the uncovered parts, and that, with even those of greatest age and the most decrepit, it is not observed on the protected parts. Even on the face and the hands this ensemble exists only on the parts most exposed.

On the hands the keratoma resembles a crust. On the face it resembles the senile warts, which are quite another thing.

The senile keratoma can give rise to a cornu cutaneum or an epithelioma by a transformation so insidious as to be insensible. The cornu cutaneum, which is not other than a variety of epithelioma, manifests itself by a projecting horn, hard, resistant, adherent, of a grayish or brownish color.

Epithelioma begins under three forms:

Globular epithelioma, the most rare. This is a tumor, globular or hemispherical, hard, ranging in size from a pea to a large nut, raising and stretching the epidermis, the surface of which will be found marked with many or few dilated blood-vessels. The summit of the tumor is the point where ulceration begins, and the progress of this ulceration can excavate and finally produce the crateriform epithelioma of Hutchinson.

Papillary epithelioma. The horny crust is replaced by a crust which in turn is raised by a friable papillomatous growth which gradually becomes vegetating.

Ulcerating epithelioma. The horny crust of the keratoma becomes friable and is gradually transformed into a less adherent crust, under which is found a superficial, friable, bloody ulceration, without a distinct border and with an indurated base.

One cause is, manifestly, age. The other is direct exposure to sun, oft repeated and long continued.

VACCINATION BY SUBCUTANEOUS INJECTION.

GOODALL (*American Journal of the Medical Sciences,* November, 1919) thus describes the technique of injection: The arm was sterilized with iodine and the vaccine injected diagonally with a fine hypodermic needle and syringe into the subcutaneous tissues.

In a few cases, by mistake, the vaccine was injected intracutaneously.

Everything should be done with surgical cleanliness.

The local reaction sets in usually between

two and four days, but in a few cases the reaction is considerably delayed; and in one colonel's family three children were vaccinated and reaction did not appear until twelve, thirteen, and fifteen days respectively.

The local reaction is much like that following antityphoid inoculation and just as variable in intensity. About 8 per cent proved ineffective, showing but slight local reaction, not more than perhaps could have been accounted for by the iodine applied to the skin; in 70 per cent (approximate only) there was a reaction similar to the usual reaction after antityphoid inoculation—*i.e.*, local swelling, heat, tenderness, slight pain, and redness.

In a small percentage of cases the reaction was marked, causing swelling and edema of the elbow and, in a few cases, edema involving the whole arm and hand.

In none of the 6000 cases vaccinated hypodermically by the author or under his supervision (for all of whom he prepared the vaccine for injection) was there any complication other than at times hyperacute local reaction.

After the seventh or tenth day the local swelling and induration subsided, leaving a hard nodule in the subcutaneous tissues, usually ill defined at first, becoming later well circumscribed and lasting for about one month. This is quite painless after the first acute reaction. The process differs in no respect from that of an antityphoid reaction, except that the onset is slower and the reaction spreads itself over several days.

The general symptoms vary in intensity and do not differ from those of ordinary vaccination.

In the 6000 cases quoted there was not one case of infection. This can be stated without question of doubt. The men were all soldiers who came directly under the writer and his medical officers for observation and for sick parade. They were all seen several times afterward, and in about 50 per cent of the cases the vaccination was done at the same time and between the regular antityphoid inoculations.

None of the 6000 required dressings, and the men were not exempted from anything but physical training and rifle drill.

A number were given light duty, and a very small percentage were excused duty for a few days, owing to excessive local or general reaction. There were no hospital admissions.

In a few cases (about 10 altogether) the vaccine was injected intradermically, and about four or five days later there developed the typical vesicular and pustular stages of ordinary vaccination, quite uncomplicated.

The advantages are that this is a clean-cut surgical operation. If untoward results develop they are due to faulty technique.

There is no open wound and therefore dressings are not required.

Dangers of secondary infection are practically eliminated.

The percentage of positive reactions is very high.

In only a very small percentage of cases the local and general symptoms caused complete incapacity.

It is painless as compared with scarification.

Children undergo the hypodermic vaccination without any difficulty, owing to the rapidity with which the injection is carried out.

SNAPPING HIP.

MAYER (*Surgery, Gynecology and Obstetrics,* November, 1919) states that the mode of production of the snap is as follows: With the body weight resting on the pathological hip, the pelvis sinks toward the opposite side. In other words, an adduction of the pathological thigh takes place. This causes the tractus cristo femoralis to press firmly against the bone and to catch just back of the posterior border of the great trochanter. As the thigh is now flexed on the body, the trochanter passes backward, carrying with it the fascial band, which thus is rendered more taut, in exactly the same way as a bowstring is tightened by the pull of the archer's hand. When

a certain degree of flexion is reached, the trochanter no longer can prevent the tightened fascial band from slipping forward. This it does with a snap. An essential in this mechanism is complete relaxation of the gluteus maximus muscle, since if this is contracted the fascial band is pulled away from the trochanter and is not caught by it.

The anatomical and physiological data enable us to understand the pathological lesion which gives rise to the snap. Any condition which causes an abnormal thickening of the tractus cristo femoralis or unusual prominence of the trochanter, or an abnormal relaxation of the gluteus maximus muscle, may be the responsible factor. In one case in which the snap developed subsequent to the removal of a strip of the fascia lata into which the fibers of the gluteus maximus muscle normally insert, it was unquestionably the relaxation of this muscle which caused the phenomenon. In another case it was probably the slight prominence of the trochanter which is to be regarded as the essential lesion. A distinct pathological lesion is, however, unnecessary, since with practice almost any one can learn to produce the snap.

The principle underlying the treatment is preventing the fascia from catching back of the trochanter. In case the snap is due to relaxation of the gluteus maximus, the difficulty can be corrected by any measure which will overcome this relaxation, such as adhesive plaster strapping or a firm flannel spica. Firm pressure back of the trochanter will prevent the adduction which is the initial step in the production of the snap. This pressure can be exerted either by adhesive plaster and felt, or by means of a mechanical contrivance.

The simplest mode of preventing the snap is the division of the tractus cristo femoralis and suturing it in such a way as to prevent it from forming again. This is the basis of the operations devised by Bayer, von Brunn, and Hohmann. In the case operated upon, the fascia was divided below the level of the trochanter in an oblique line and the two edges of the incised fascia were sutured to the bone with a gap of one-half inch between them, so as to prevent them from reuniting.

VACCINES IN THE TREATMENT OF SEPTIC ARTHRITIS.

HAY (*Ohio State Medical Journal*, November, 1919) in all cases of septic arthritis makes a culture from the tonsil crypts. If he does not find the organism there he seeks elsewhere.

The mucous membranes of the nose and anterior pillars present certain discolorations in all forms of throat infections. In cases of septic arthritis, commonly called rheumatism, these mucous membranes present a distinct purplish hue, and in many cases the author has noticed the mucous membrane of the nose bathed with a very thin layer of whitish secretion, this being so profuse in severe cases that it accumulates on the floor of the nose. The intensity of this discoloration of the anterior pillars is most marked directly in front of the tonsil, gradually shading to normal. The tonsils themselves may show no abnormal changes. All forms of tonsil infections are accompanied by changes of color of the mucous membranes of the anterior pillars, the discoloration being most intense directly over the tonsils, and in many cases the infection may be identified by the discoloration.

The day is past when it is safe to make a diagnosis of a septic tonsil from its appearance. The only safe and sure way is to make a culture from the crypts. Even in the most severe cases of tonsillitis there may be no evidence of systemic invasion, and the innocent-looking tonsil may be the cause of the most severe systemic symptoms.

Nearly every case of septic arthritis gives a definite history of having had tonsillitis either mild or severe at some previous time.

A tonsil once infected with the Connellan-King diplococcus may remain in a latent stage for several years; then after a lowering of the body vitality it may cause the most severe form of septic arthritis, myo-

carditis, endocarditis, or nephritis, without any inflammation of the tonsil.

A vaccine is made, and 200,000,000 are given every third day for about 10 doses. About this time the body is immunized and the tonsils are enucleated. In view of general sepsis following tonsil operations, this method greatly lessens the dangers of general septicemia, coming on after tonsillectomy.

Hay has treated 57 cases of septic arthritis with autogenous vaccines. He states that the results are gratifying.

It should be noted that by the term septic arthritis the author means that form of inflammation commonly called rheumatic.

OBSERVATIONS ON THE ILEOCECAL VALVE IN MAN.

SHORT (*British Medical Journal,* 1919, ii, 164) had an opportunity to observe the action of the ileocecal valve in a patient who had had a cecostomy for dysentery. He states first that it is perfectly obvious that the ileocecal valve should be regarded as a sphincter rather than a valve as it is oval in shape and has a well-marked ring of muscle surrounding it. When the sphincter is contracted it is about ¾ inch long and grips the inserted finger quite firmly.

The essential factor in bringing about activity of the sphincter is the ingestion of food by mouth. This never fails. The time of the reflex is one and one-half to four minutes. When activity begins, the sphincter relaxes and may measure 1½ inches across; the folds of the ileal mucosa come into view. Having relaxed, the sphincter does not contract again until activity ceases, differing in this respect from the pylorus.

The further observations following the intake of food showed first that there is an exit of gas and then a gush of liquid orange or brown fecal matter which comes through in amounts of about ½ ounce at a time at intervals of about half a minute. This goes on while the food is being taken, and for a variable time, usually about an hour, afterward, unless the food consists only of a biscuit or glass of milk, in which case the orifice ceases to discharge after twenty minutes or so. Undigested foods, such as currants, take about six hours to come through from the mouth to the ileocecal valve.

On one occasion the author obtained pure succus entericus, which he explains by the fact that no fecal matter was present in the terminal inches of the ileum. He showed by actual tests that the activity of the sphincter is not influenced in any way by acid or alkaline solution. Moreover, limited observations did not show any influence on the emptying of the stomach by irritation of the cecal mucosa. Local stimulation of the cecum near the orifice definitely delayed the outflow, and the author considers this of considerable importance as bearing on the question whether chronic inflammation in the ileocecal region, as, for instance, chronic appendicitis, can delay the passage of bowel contents through the sphincter.

The observations as to the effect of enemata by rectum do not agree with former reports, inasmuch as in this case they did not provoke any activity of the ileum or the discharge of ileal contents.

THE ACTION, USE, AND ABUSE OF PITUITRIN.

Under this title SCHULZE (*The Journal-Lancet,* Nov. 1, 1919) concludes a rational article as follows:

Although pituitrin has been in obstetrical use for some years now and has given, in the hands of careful men, good results, its employment, nevertheless, is by no means free from danger.

In a healthy multiparous woman with the os fully dilated and the membranes ruptured, with a head presenting normally and resting on a relaxed and easily stretched perineum, and the pains showing a tendency to lag, we have conditions as nearly ideal for the administration of pituitrin as we can hope to find them.

Keep in mind the age and parity of the

patient; do not forget about the bladder; determine the condition of the anterior lip of the cervix, and remember that a lazy uterus needs stimulation, whereas an exhausted uterus calls for relief.

The dose for intrapartum use should be a moderate one.

The bad results for the mother are deep lacerations of the cervix and perineum and even rupture of the uterus; for the child, asphyxia and cerebral hemorrhage.

It may be used postpartum for intestinal distention and retention of urine; and, when combined with ergotol, to control postpartum hemorrhage and in Cæsarian section.

It should never be used in the first stage of labor; it has no place at any stage in a normal case; it should not be used to induce labor at full term, but it may be used to hasten the termination of an inevitable abortion.

If in doubt, do not use it; if absolutely certain, remember the small dose.

BACILLARY DYSENTERY: CARRIERS AND FLIES.

From the standpoint of the sanitarium there is no more difficult problem and none more inadequately met than that of the carrier. In so far as bacillary dysentery is concerned there is much to be learned concerning its causation, prevention, and treatment. The report (*British Medical Journal,* Oct. 11, 1919) of the investigation of bacillary dysentery in Macedonia states that the occurrence of mucus in the stools should be regarded always with grave suspicion among patients with a history of previous dysentery. All such should be subject to repeated laboratory examinations. It is noted that the percentage of convalescent dysentery patients carrying bacilli is about six, but that three months after the onset this had been reduced to 1.5.

Concerning the serum treatment in acute bacillary dysentery it is observed that mixed serum given at the beginning gave better results than could be scientifically expected. The vast majority of the cases observed in the Gallipoli campaign and in Macedonia were due to the Shiga bacillus. It is highly advisable that every effort should be made to produce an efficient and standardized anti-Shiga serum and use it in the same way as antidiphtherial serum, thus avoiding excessive dosage with horse serum. The injections could be given subcutaneously.

The belief that the infection of dysentery and certain other intestinal diseases may be carried by the house-fly is very generally held, and has been made the basis of crusades. It has been founded mainly on general considerations, but has received support from some careful bacteriological investigations, especially those of Faichnie, Graham-Smith, and Bahr.

The last section of the report contains some epidemiological and experimental observations of a precise kind, tending still further to incriminate the fly. The inquiry was conducted under three heads: the number of flies present at different seasons in a certain area was compared with the incidence of bacillary dysentery arising in that area; experiments were made to ascertain whether a fly deliberately infected with a bacillus of the dysentery group carried that bacillus; and, thirdly, to ascertain whether flies in their natural state were carrying dysentery bacilli. Two years' experience in the Salonica command showed that while bacillary dysentery occurred to some extent among the troops throughout the warmer months, there was a greater prevalence in spring and early summer, and in late autumn—periods when the fly pest was at its worst. The number of flies was estimated by the use of fly traps; the numbers trapped reached a maximum in May, and then declined, to rise again at the end of October, but their number then was much smaller than in the early summer. The number of flies was low in March, when the mean temperature of the air was below 50° F. and the minimum was 28° F.; the climate was then evidently too cold for the incubation of the eggs and larvæ of the fly. In July, August, and early September the

mean temperature was usually between 75° and 85°, with a maximum of 102° or 104°, but the relative humidity curve was, with one exception, below 50. This weather evidently rendered the breeding grounds too dry for the successful hatching of pupæ, and probably killed many adults. Changes in local conditions in the areas under observation introduced certain fallacies, but, on the whole, it was obvious that periods during which bacillary dysentery was most prevalent corresponded to the periods when the flies were most numerous. In the early summer the rise in dysentery appears to have followed the rise in the number of flies at an interval of about three weeks. In the autumn the rise in the number of cases of dysentery seems to have preceded the rise in the number of flies.

In the experiments to ascertain whether the fly is capable of carrying dysentery bacilli the insects were fed in improvised cages on materials known to contain Flexner or Shiga bacilli. Three methods were used to recover the bacilli after feeding; in the one a fly was allowed to roam about on a plate of MacConkey's medium, and the plate incubated. This reproduced the natural process, since the fly might infect the medium by wiping the feet, regurgitation, or defecation, as in food contamination. In the second the fly's fecal deposit was collected and emulsified on sterile saline solution; it was then plated. In the third method the insect was killed, the legs were detached and dropped into broth, which was then incubated for from six to twelve hours and then plated. A variable amount of growth was obtained by all methods, often, in the first and third methods, too great for convenient examination. The second is therefore recommended as the most suitable method for the isolation of dysentery bacilli, and beyond twenty-four hours from the time of infection; after the lapse of this time the prospect of recovering the infecting organism from the fly diminishes very markedly. The total number of flies examined was 382, and positive results were obtained in 79.

The series of experiments to ascertain whether flies in their natural state were carrying dysentery bacilli were made on insects caught in various parts of two hospitals, in neither of which were there wards allotted to cases of dysentery. The results were sufficient to show that flies living under natural conditions may carry dysentery bacilli, but judging from these experiments alone this would appear to occur infrequently. During the period April to June, 1918, when the flies were in an active state, in great numbers, and the incidence of dysentery was high, 1200 were collected in equal numbers from the two hospitals. Typical dysentery bacilli were not recovered, but Flexner's bacillus (inagglutinable) was recovered from two, and a para-Shiga bacillus from one. In October, 1918, during the increased incidence of dysentery at that time, 330 flies caught in one of the hospitals were examined. The flies were numerous and active. Among 160 flies examined by the walking method typical Shiga's bacillus was recovered in one instance (a fly caught in a hospital kitchen), and a Flexner-like bacillus (inagglutinable) in four. The feces from 170 other flies were examined; typical dysentery bacilli were not found, but a Flexner-like bacillus (inagglutinable) was recovered from two. Though the number of positive results was small, it must be remembered that 1670 flies—the total examined by this method—would form a very small proportion of the total swarms.

PERMANENT CURE OF INGUINAL HERNIA.

La Roque (*Surgery, Gynecology and Obstetrics,* November, 1919) observes that for the past twenty years permanent cures of inguinal hernias at the hands of good surgeons and in proper hospitals have increased from 90 to 95 per cent of all cases operated upon. So long, however, as the standard methods of operating failed to cure 10 or 1 per cent of cases, surgical efficiency is less than 100 per cent perfect.

LaRoque illustrates and describes what seems to be a desirable modification of the standard technique.

The general peritoneal cavity is opened well above the hernia and exploration carefully made.

The entire operation is "open," the structures are in good view, and all operative work is under constant guidance of the eye.

Constricted and adherent bowel and omentum are safely and easily removed from the hernia and structures in the region, and all bleeding points securely ligated.

Coincident pathology of the bowel, the appendix and pelvic organs may be recognized and dealt with through the same or a separate incision at the time the operation for hernia is performed.

The bladder, bowel, vas deferens, large vessels, and other structures in the region of the hernia are under constant inspection and adequate protection against injury.

Loculation of the sac, sliding and other anomalous forms of hernia, are promptly and immediately recognized and properly treated.

Enucleation and removal of the entire sac, including the redundant peritoneum in the region to a point well above the neck of the sac, are surely and safely accomplished with the minimum amount of trauma to the cord and other structures in the region.

The internal ring and beginning of the spermatic cord can be easily and adequately lifted upward and outward, thus certainly obliterating the internal ring and actually transplanting the proximal portion of the cord at its origin (both of which procedures are useful), rather than merely shifting only the middle or distal portion of the cord to an apparently changed location (the needfulness and permanency of which is questionable).

Hernias which have been previously incompletely removed and in which the canal has been properly sutured (so-called recurrences) with a portion of the original sac and its neck remaining, may be completely cured with the least trauma to the cicatricial tissue following the previous operation and without the necessity of reopening a partially or completely obliterated canal.

The procedure is equally applicable to indirect and direct inguinal and to femoral hernias, and to rare cases of combined types. It is especially useful for difficult, complicated cases.

TEMPORARY STERILIZATION OF THE FEMALE.

TURENNE (*Surgery, Gynecology and Obstetrics,* December, 1919) writing on this subject notes that the disadvantages of the anticonceptional practices most frequently used have been largely studied, especially by the European anti-Malthusians, who for the most part mask nationalism and an aggressive militarism with abundant verbiage about an apparent high morality. There is no doubt, however, that the violation of the natural laws of copulation, of which coitus interruptus is the type, brings on serious danger of nervous inequilibrium in both sexes and such psychic disturbances as the unfortunate Professor Bossi has described with singular mastery, although perhaps in a manner unduly detailed. The use of substances fatal to the spermatozoa is impracticable, especially in the customary mode of conjugal life; and mechanical means of cervical occlusion, in particular the intra-uterine pessary, are dangerous, often giving rise to uterine cancer, in the etiology of which traumatism and infection seem to be preponderantly important, and this is brought on by the trophic epithelial deviation with a rigid stem which permanently irritates the mucosa. Most men find it difficult to use a condom. Aside from the indications of the interested individual order to which the physician ought not to listen, there remains a group of indications for which the occasion for sterilization of the female can be considered.

The progress in pathology and obstetric technique daily reduces their number, but aside from irreparable or definite situations,

there exist circumstances in which an affection, susceptible of contraindicating pregnancy or childbirth temporarily, is cured, or rather the contraindication disappears. Nor must the cases be forgotten in which a marital psychosis can justify a temporary sterilization which would have no reason for being in the event of the death of a sick husband or in case of divorce.

The procedures which have been used heretofore have the disadvantage of sterilizing permanently, and when they have not done so it ought not to be laid to the operator; to these last belong ligation and simple section of the tube. More radical are tubal resection between two ligatures, resection of the proximal tubal end and a wedge out of the cornu of the uterus, the resection of the ostium with a piece of the tube and its inclusion between the layers of the broad ligament, and the extraperitoneal fixation of the tube in the inguinal canal of the round ligament. While these procedures produce definite mechanical sterilization, they are accompanied, with relative frequency, by degenerative disturbances of the ovary; no insignificant matter if the capital endocrine function of this organ is taken into consideration.

Every procedure for temporary sterilization should, according to our opinion, meet the following requirements:

It should be easy of execution.

It should reduce to a minimum the danger to the life of the patient.

It should avoid producing degenerative lesions of the ovary.

It should not modify substantially the nutrition, the topography and the functioning power of the different segments of the genital apparatus.

It should permit of the reëstablishment of cervico-ovarian communication.

The technique which the author suggests is as follows:

The operation is done with the patient under general anesthesia—morphine-kelene-ether. The patient is placed in the Trendelenburg position; and the Pfannenstiel incision used. The pelvic and abdominal organs are explored, and if necessary operations on the adnexa and appendix performed. After the integrity of the adnexa is established, or if the lesions are extremely small (microcysts, small adhesions), we proceed, holding the broad ligament with two hooked forceps in a way to present amply its anterior surface; 10 or 15 millimeters from the lower tubal border and near the ostium we make a 15 or 20 millimeter incision in the anterior layer of the broad ligament; we separate the edges of the incision and hollow out in the cellular space which separates the two layers of the ligament a little pocket sufficient to contain the tubal ostium. This is folded in and sutured; for greater security it is fixed to the ligament at a separate point near the tube. This organ retains sufficient mobility, it is not violently kinked, and prolonged observation does not show any circulatory disturbance of any sort. With this technique one can be certain of being able later to do with ease a salpingostomy and to adjust the opening to the ovary as in the classic salpingo-ovaropexy. The abdomen is closed by peritoneal and aponeurotic suture, intradermic cutaneous suture, or with clips.

RESECTION IN SLIDING HERNIA.

RUTHERFORD (*Glasgow Medical Journal*, September, 1919) reports the case of a man sixty-five years of age, with a large irreducible inguinal hernia on the left side. This had appeared four years previously, and was followed a year later by a hernia on the right side. On operation it was found impossible to get the bowel reduced. Examination of the loop showed that the mesocolon was spread out in the scrotum and intimately connected with it. The sac was separated up to the external ring, but even after opening the abdomen in the middle line and pulling from above the hernia could not be reduced. The length of about ten inches of colon was removed, the ends closed, pushed and pulled back into the abdomen, where lateral anastomosis was carried out. The herniotomy wound

was closed so as to reform an inguinal canal. The patient examined three years after operation was found to be well and working.

The second case was in a man of sixty-four, who showed a bulky right inguinal hernia which had existed since childhood and had been twice strangulated, the last attack being of more than twenty-four hours' standing.

The sac was found to contain the cecum, a part of the ascending colon, both gangrenous, and in addition three loops of ileum. On pulling down the ileal loops they also were found to be gangrenous.

The expression "sliding hernia" we owe to Scarpa, as also the first full account of the condition from a clinical point of view. It was set forth in his treatise on Hernia (Milan, 1809, 1810), and has been available to English readers in Wishart's translation since 1814. He acknowledges the observations of Wrisberg in fetuses, and collates the reports of various surgeons who had met the condition without understanding it. He quotes Pott, to the effect that "ruptures are sometimes rendered difficult to be reduced by that portion of the intestinal canal which is called the cecum, or the beginning of the colon, being contained in the hernial sac;" also two cases of Petit, one right and the other left, where, after relieving the strangulation, he had to leave the hernia *in situ*. A particularly interesting report quoted is that by Arnaud (1732), where the surgeon tells how he spent an hour and a quarter dividing adhesions and bridles, which connected the colon to the hernial sac, before he felt compelled to cut away the whole of the herniated bowel close to the inguinal ring. We are not accustomed to think of such protracted operations being performed without the anesthetics that have made them so common to-day.

In Wishart's translation occurs the following, which is transcribed as a good account of the form of hernia under consideration, and an exposition of its origin:

"The other species of close and extensive connection of the intestine to the hernial sac, or the natural fleshy adhesion, is that formed by the natural ligaments connecting the intestine, before its descent into the groin, with the great sac of the peritoneum in the cavity of the abdomen. These natural ligaments slide, to use the expression, along with the intestine from the cavity of the abdomen, through the inguinal ring, into the scrotum. This species of adhesion is not common to all intestinal scrotal herniæ, but is proper and peculiar to that scrotal hernia which is formed by the descent of the large intestine; that is, on the right side by the cecum, with the appendix vermiformis and the beginning of the colon, and on the left by that portion of the colon which, in the natural state, is connected to the great sac of the peritoneum, in the left ileolumbar region, a little before this portion of intestine enters the pelvis and assumes the name of rectum."

McGavin (Choyce's *System of Surgery*) sums up the question of sac or no sac as follows: "Although it is hardly accurate to say that a hernia may occur without a sac, certain protrusions of viscera do occur uncovered, or only partially covered, by parietal peritoneum. In that case a sac either has disappeared by an alteration in the position of the hernia, or can be found lying to one side of the main mass of the protrusion. Such instances are to be found in hernia of the cecum, sigmoid, and bladder." To illustrate this he gives an excellent diagram.

Graser, in the *Handbuch* of Bergmann, Bruns and Mikulicz, clearly distinguishes cases of hernia irreducible on account of adhesions from those in which a viscus attached in the abdomen without mesentery has passed down into the hernia with gradual enlargement of the sac. The viscus then forms a part of the wall of the sac, and it is conceivable that, for this reason, not being freely movable in the sac, it may not be possible of reduction. He contrasts these two difficulties in reduction with a third, namely, that of habit, the habit rather of the abdomen than of the viscus, which

latter has, in the words of Petit, lost its right of domicile in the abdomen.

McAdam Eccles (Hernia, p. 133), speaks of "congenital cecal hernia, or . . . where there has been much displacement of parietal peritoneum, the viscera may be adherent on account of the natural want of serous membrane. Some of the cases give rise to insurmountable difficulty, and in a few instances the surgeon may be justified in going to the extreme measure of resecting a portion of the bowel. Usually, however, if the parietal peritoneum has been divided about half an inch below the adherent intestine, the latter may be pulled up and pushed within the abdominal wall, and the gap in the peritoneum sutured at the deep ring."

Macready (Ruptures, 1893) gives an admirable account of the condition, with references to the literature. He quotes freely from Scarpa, and points out how the observations of Wrisberg only became intelligible when the structure and functions of the gubernaculum testis came to be known; as to this, he quotes C. B. Lockwood.

AGE INCIDENCE AND DISTRIBUTION OF CANCER OF THE UTERUS.

PETERSON (*Surgery, Gynecology and Obstetrics,* December, 1919) concludes a study of this subject as follows:

The maximum age distribution in 500 cases of cancer of the uterus is at the age period forty to forty-five.

Between the ages thirty-five and sixty-five occurs 82 per cent of uterine cancer.

The young female is not immune to cancer, since 7 of 500 cases, or 1.4 per cent, occurred between the ages of twenty and twenty-five.

Uterine carcinoma below the age of twenty is exceedingly rare, but it does occur in an appreciable percentage of cases between twenty and twenty-five.

The cervix was the seat of the disease in six out of seven cases occurring between the ages of twenty and twenty-five.

The maximum number of cases of carcinoma of the cervix is to be found in the age period forty to forty-five.

In the present series of cases carcinoma of the fundus was found in an unusually large percentage of cases, 94 out of 500, or 18.8 per cent.

The maximum number of cases of adenocarcinoma of the fundus is to be found between fifty-five and sixty, fifteen years later than in squamous-cell carcinoma of the cervix, which is forty to forty-five.

Adenocarcinoma of the fundus is not a disease of early life, there being in the present series only three cases out of 94 below the age of thirty-five.

From the analysis of this series and from the statistics of other writers it is fair to assume that from 10 to 15 per cent of uterine carcinoma is located in the fundus.

A large proportion of the 500 cases of uterine cancer was squamous-cell carcinoma of the cervix, 369 in all.

In contradistinction to carcinoma of the fundus 23.5 per cent of squamous-cell carcinoma of the cervix is found in patients under forty.

Practically 50 per cent of the 369 cases of squamous-cell carcinoma of the cervix occurred between the ages of forty and fifty-five.

Adenocarcinoma of the cervix is much more rare than the two other forms, 37 out of 500 cases.

The maximum number of cases occurs in age period forty to forty-five.

Between twenty and forty years of age there were 30 per cent of the 37 cases of adenocarcinoma of the cervix.

The age incidence of carcinoma of the uterus at different age periods is determined by the following:

Ratio for age period:

$$N = \frac{\text{percentage of carcinoma for age period N}}{\text{percentage of population for age period N}}$$

The maximum age incidence for carcinoma of the uterus is at age period fifty-five to sixty; it declines rapidly from this age period to the period seventy to seventy-five.

The greatest age incidence for adeno-

carcinoma of the fundus is the same as that of cancer of the uterus as a whole, age period fifty-five to sixty.

The highest carcinoma incidence in carcinoma located in the cervix, in squamous-cell carcinoma of the cervix, and in adenocarcinoma of the cervix, is at the age period fifty to fifty-five.

After each age period of greatest carcinoma incidence is reached, there is a sharp decrease in incidence demonstrating the incorrectness of the statement that the age incidence of carcinoma increases with the age period.

MATERIAL USED FOR NERVE SUTURE.

SARGENT and GREENFIELD (*British Medical Journal*, Sept. 27, 1919) as the result of their laboratory work and microscopic study announce the following conclusions:

It must be confessed that, in spite of much careful work on the subject, especially by the French neurologists, our knowledge of the exact changes which take place in a nerve after suture is still somewhat indefinite, especially as regards the part taken by the neurilemma cells and the connective tissue elements. It seems to be clearly enough established that finger-like prolongations of the neurilemma sheath spread out into the intervening tissue from both ends of a divided nerve. As regards the proximal end it is probable that this takes place independently and in advance of the axis cylinders. These outgrowths penetrate the intervening tissue along the lines of least resistance, and, when dense fibrous tissue is present, either make their way around it or penetrate it by separation of its bundles and planes. In such a case a number of the outgrowths may find it increasingly difficult to force a passage until they may be unable to proceed further. Where some easily penetrated tissue, such as granulation tissue, intervenes, they pass through it readily enough, branching repeatedly, and giving rise to a small plexiform neuroma. The new nerve fibrils passing along the channels thus made are scattered and separated, so that they run at first in bundles of two or three; later, more numerous fibrils run down alongside the first, until a rope-like bundle of twenty or more interlacing fibrils passes down the neurilemma pathway. These bundles of fibrils become collected more densely together when they reach the old neurilemma sheaths of the distal nerve segment, and in them run straight to their termination.

The reactions of the neurilemma and connective tissue in the distal segment are similar in every respect, and result in the formation of a nerveless "neuroma."

Any suture passed through a nerve gives rise to tissue reactions, whose effect is to put an obstacle in the path of the axonic downgrowth; the degree of such hindrance will vary with the thickness, absorbability, and irritative character of the suture material. It is upon these criteria that such materials must be judged.

While plain thread or silk sutures give rise to no irritation, they are relatively unabsorbable.

"Plain sterilized" and "plain iodized gut" are of value by reason of their rapid absorbability, but their low degree of tensile strength and their slightly irritating nature counteract these advantages.

"Japanese silkworm-gut" has great tensile strength, and in rate of absorbability and the reaction which it causes holds a place midway between the first and second groups.

Chemical antiseptics should be avoided in all suture materials.

FREQUENCY AND SIGNIFICANCE OF GRANULAR URETHRITIS.

ARONSTAM (*Urologic and Cutaneous Review*, November, 1919) notes that granular urethritis is the causative factor of 90 per cent of all stricture formation, the remaining 10 per cent being due to highly caustic agents used as instillations and hand injections. If granular areas are left untreated, three effects may ultimately take place:

(1) The perpetuation of a chronic urethritis accompanied by no pathological alterations in the structure of the granulations; (2) the most important consequence is the formation of a stricture at the site of their location, either in the anterior or posterior urethra, principally so in the latter; (3) the least frequent result is the transformation of a granular urethritis into that of a papillomatous one.

The treatment may be divided according to its relative importance into three parts: Urethroscopic; treatment directed to the urethral appendages; vaccinotherapy.

The urethroscope is of paramount importance not only in detecting granular areas but also in their treatment. The urologist should always have three sizes on hand, all of the posterior variety, viz., 20, 22, and 24 Fr.; Nos. 22 and 24 constitute the normal calibers. As a rule, the largest size should be employed. If not passable, a meatotomy should be performed with rapid dilatation of the meatal opening to 26 French.

For cauterizing the granular foci a 5- to 15-per-cent solution of silver nitrate is used. Thereafter a sound is dropped in and left for from ten to fifteen minutes. Two treatments a week are adequate. Three to four months seems to represent an average period of treatment. Where papillary growths have taken place their removal by a knife carried through the urethroscope or by sparking is indicated. Granular foci are usually located in the posterior urethra.

SCHOOL MYOPIA.

Under this title the *British Medical Journal* of September 27, 1919, contributes a leading article to the following effect:

The very term "school myopia" implies the acceptance of a theory, made in Germany, that there is a type of short-sight engendered, or at any rate increased in degree, by school work. Cohn was one of the first to formulate this hypothesis, and although founded on very flimsy evidence it received wide and almost unquestioned acceptance. This myopia theory has almost become glorified into a Law of Nature, and has even influenced policy, in that in London and elsewhere we have myope schools in which a modified education is provided for short-sighted children with the object of inhibiting increase in their myopia. If the theory really is a law then there is every justification for the provision of such schools, and for restricting study by myopes. If, however, it should turn out that Cohn and his supporters are wrong, then it is quite unjustifiable to spoil the future of short-sighted children by depriving them of a normal course of study, and myopia schools should be employed solely for the education of the bad-sighted, to educate those who cannot see well enough to take advantage of the normal school course. The short-sighted are generally studious and take pleasure in books; they make useful citizens and are successful in every work of life in which good distant sight is not essential. If all young myopes are forced into the myope schools their future career of usefulness will be restricted, and they will not be able to compete in the "brain market" as they do at present with conspicuous success.

The Cohn theory depends upon the fact that in schools myopia increases in incidence and degree from the lower forms upward; it is, however, equally true that the disability increases in children who never see a school, and in adults long past school age. It has never been shown that the increase is greater or more rapid in school-children than in those who do not attend school. It is said that engravers, dressmakers, and others who use their eyes for close vision over long periods furnish more myopes than the rest of mankind, and that urban populations are more affected than rural. The former statement is probably true, for myopes take more kindly to near work than do hypermetropes, and choose it in preference to other occupations. Again, dressmakers work long hours under bad hygienic conditions, and any factor which lowers the general tissue-tone must act

equally upon the sclerotic coat, and tend to increase the tendency to short-sight.

The idea that urban populations furnish a larger proportion of myopes than rural is open to question, and even if true is no proof that urban conditions cause myopia; the studious myope naturally gravitates to a town. But is it a fact? Statistics show that high myopia with changes in the fundus is more common and more severe in rural districts, and the reason is not obscure. There is evidence that myopia is apt to be strongly hereditary, and among rural people close intermarriage is often common, so much so that a very few surnames may suffice for a village. The same is even more true of mining villages, in which marriages outside the mining class would seem to be discouraged. But even in the case of myopia of low and moderate degree it is very doubtful whether the supposed superiority of the village can be substantiated. Ernest Thompson, ophthalmic surgeon to the County of Lanark Education Authority, has just published an illuminating article upon the incidence of myopia in Lanarkshire. The figures he gives are as follows: Urban districts 17 per cent, rural districts 20.5 per cent, mining, agricultural, manufacturing districts 26 per cent. We suggest that the reason why the mining and rural districts head the averages is the existence of hereditary defect fostered by intermarriage.

It cannot be said that there is any theory which explains the onset and increase of myopia. The facts are that myopia is due to stretching of the sclera with consequent elongation of the optical axis of the eye. The disease is often though not always hereditary, and there is a strong racial predisposition. It is very common in Germany and among the Jews, comparatively rare in the British Isles. It is found in most races —even among the Bedouin Arabs, who never read or go to school. High myopia occurs in young children below the school age, and it often affects one eye only. The last two facts seem to exclude the possibility that the cause is to be found in close work. Nor are any of the many theories which have been propounded to explain how near work stretches the sclera capable of scientific proof. It has been said that muscular action raises the intraocular tension and stretches the sclera. Unfortunately for this theory, in conditions of raised intraocular tension we do not get myopia, but cupping of the optic disc and buphthalmos. The hypothetical rise of tension during accommodation has never been determined by methods which cannot be destructively criticized. We believe that myopia is neither originated nor increased by near work.

THE CAUSATION OF CANCER.

PENNINGTON (*Modern Medicine,* volume 1, No. 4, 1919) quotes Ewing to the effect that we never have more than a descriptive knowledge of the nature of neoplastic overgrowth. As to the parasitic origin of disease, it still remains to be proven. Concerning cancer areas and cancer houses the evidence is conflicting, although at times extremely striking. The influence of heredity seems to be distinct but slight. In this relation Slye's researches are quoted, bearing upon heredity in mice. Since these animals were living under artificial conditions, and since we know so little of life processes in such short-lived creatures, the findings, while interesting, should be accepted with some reservation when discussing cancer of human beings. After an experience with 5000 individual mice, the results show cancer to be hereditary in the strict sense. The common laboratory infections spread through a given cage as well as to adjacent cages; not so with cancer. When an infected mouse dies and is devoured, every mouse in the cage is liable to be carried off by the same infection; this never happens with cancer. Cancer differs so inevitably that it can be manipulated—can be put into a strain, can be extracted out, or can be bred out of a line one side of which carried 100 per cent of cancer orig-

inally. Finally, cancer is not transmitted as such, but rather is prone to follow a given provocation, probably in the form of overirritation.

In 1901 Löffler proposed to treat cancer with injections of blood from malarial patients. Malaria and cancer are mutually antagonistic. Malaria is most prevalent in the tropics, and as it gradually lessens toward the poles, cancer increases, due to the fact that natives in tropical countries have at some time in life been affected with paludal infections of severe type. Coming from the co-discoverer of the diphtheria bacillus, this is surprising. One of the most malaria-infected spots on the globe is Italy, especially the notorious Campagna outside Rome. As Bertillon and also De Bovis show, cancer is rare.

Kieffer, after extensive investigations in Cuba, comes to the conclusion that there is no real antagonism between malaria and cancer, and that the source of malignant disease is not modified by the occurrence of malarial infection in cancerous subjects. He has had a varied experience in the tropics, and finds that malignant disease is relatively less frequent than in colder climes, though in this respect countries differ greatly.

The dictum of Rokitansky that cancer and tuberculosis are inimical to each other has proved to be unfounded, cases of each in the same subject being placed on record from time to time, though to be sure the association is not very frequent. While Landis states that of 633 necropsies at the Henry Phipps Institute, a very small percentage not being tuberculous, but one carcinoma was found in fifteen years, and that in a patient free from tuberculosis, other institutions give a much larger proportion. Thus Lubarsch in 6536 cases found 4.4 per cent of tuberculous individuals were affected with cancer; on the other hand, 20.5 per cent of cancerous subjects had tuberculosis. Bang in a series of 6000 necropsies on tuberculous individuals found 16 per cent of these had cancer as well; and Boinet in 800 necropsies discovered cancer in 35, in 11 of which pulmonary lesions were present.

Syphilis, another member of the infective granulomata, has been incriminated by Curtis, who writes that in the early nineties, among the patients treated for cancer he discovered some with a symptom which he had demonstrated to be a clinical sign of syphilis, *e.g.*, the egg-skin eschar of the mouth and other mucosæ. He is warranted in the conclusion that syphilis is the real cause, because in the succeeding eighteen years he had found clinical evidence of syphilis in the majority of his cancer cases, and because antisyphilitic treatment improved all cases and even cured some when seen early.

DePury firmly believes not only that syphilis favors the development of cancer, but that the hereditary form is the fitting soil, admirably prepared and predestined, so to speak, to a fatal cancerous degeneration. In conclusion, he remarks it is curious that of the three great plagues which in Europe since the sixteenth century seem to follow and complement and serve as lures for one another, two should be of parasitic origin, the other not.

If there is any foundation for the theory of the syphilitic causation, striking confirmation should be had from the Pacific Islands, which have been a hotbed of syphilis for considerably over one hundred years, as a result of the visit of whaling vessels. Both negative and affirmative evidence is to be had.

Some facts can be found to substantiate the parasitic theory; others, as the famous "Kangri burns" of Kashmir, negate it. This leads the author to ask if there is only one cause after all. As Rohdenburg and Bullock observe, the wide distribution of tumors in nature speaks for the possibility they are dependent on general biologic phenomena, as opposed to some specific causal agent.

Cancers have been found in the warm-blooded animals and birds, in the cold-blooded reptiles, amphibians and fishes, and—according to Bashford—even the

lowly oyster has been found to harbor a tumor. The author believes it is evident that the same cause for malignant tumors in man must also hold good for similar growths in other vertebrates.

ETHER ANESTHESIA BY INHALATION FOR MINOR OPERATIONS.

HAINES (*American Journal of Surgery*, October, 1919) describes a modification of the method whereby a patient may induce an analgesia lasting from one to three minutes by taking several deep breaths from a closed cone saturated with ether. An attempt has been made to improve upon this method by lengthening the induction period, thus making it safer for the patient and by prolonging and controlling the period of analgesia so as to widen the field of operations to which it is applicable.

Thorough preparation of the patient, both physical and psychologic, is more important to the success of analgesia than to the safety of the patient. Mild catharsis and restriction of food and liquids should be the same as before any general anesthetic. A hypodermic injection of morphine and atropine given about one hour before the operation aids materially in calming the patient's mind and is helpful in producing narcosis, though not at all essential. The coöperation of the patient is quite necessary. His confidence can practically always be gained by telling him that he will not have to take much ether if he will relax his mind as well as his muscles, that he will not be sick afterwards, and can eat and drink as usual. He is assured that he will feel no pain, that his operation is not serious nor exceedingly painful, but a little too painful to be performed without an anesthetic. He is promised that he will not feel any sense of suffocation as he is going under, and he never should, or his fear is excited.

The technique and apparatus are simple and easily adaptable to use in the wards as well as in the operating-room. A Schimmelbusch mask covered with two layers of fine wool stockinette is preferable. A towel or gauze roll is in readiness for wrapping around the edges only of the mask. The patient's eyes are covered with wet cotton. The use of Squibb's ether is preferable.

The patient is in the operating-room or in bed in his ward, so that he is not moved until after the operation. If he is strong he is firmly yet comfortably tied down. Patients operated upon in bed were never tied. The field of operation is prepared and the surgical team is ready to begin work. Then the administration of ether is begun. The mask is lowered to the face by the end of two minutes if possible, and after a few more respirations the towel is wrapped around the mask, tightly if the patient is large and husky, but loosely if he is not. At the end of four to seven minutes the patient is almost always ready for the operation. During this induction period there should be very little talking or other noise in the operating-room and the surgeon and assistants should not palpate, probe or touch the patient anywhere near the field of operation. This non-interference in the first few minutes cannot be emphasized too greatly, for a patient feeling a probe will fear that he is being operated upon, and he may be past the stage of reasoning. He is taken just to but not into the stage of ether excitement. He is usually in a state either of semiconsciousness or of unconsciousness, though occasionally he may be conscious. It is very difficult to maintain this state and to increase the administration at exactly the proper rate when painful procedures are begun, since the margin between perception of pain and the excitement period is exceedingly narrow.

After the anesthetic is once begun very little is said to the patient except an occasional word of instruction to breathe regularly and naturally, or a little faster or more deeply as is needed in the individual case, and an occasional assurance that everything is all right and that he is doing splendidly. When he is ready for opera-

tion a quiet signal is given to the surgeon to begin. In some subjects it is difficult to maintain the desired stage of analgesia or light anesthesia longer than from three to five minutes, while often it can be maintained quite satisfactorily for ten to twenty minutes.

The administration of ether can seldom be discontinued more than a few seconds before the termination of the operation. Within one minute after the mask is removed the patient will obey a command to open his eyes. Before the dressing is bandaged on he begins to grin and talk. His face is washed with cold water and he is told to take sevaral deep inspirations through a cold wet towel. If this is done as soon as he is awake enough to respond, nausea will very seldom occur. Upon awakening the patient is very happy, often hilarious, but in two or three minutes he talks rationally. A few patients moved, talked, or yelled, during the operation, but showed no signs of shock afterwards, their color and pulse being those usually resulting from the stimulation which a small amount of ether produces.

Theoretically such a stage of extremely light operative anesthesia seemed impossible, but practically it was found to be possible in about 95 per cent of the cases attempted. Two corps men (medical students), who attained considerable skill in anesthesia, learned to give these light anesthesias quite successfully.

Painful dressings and short operations, even though quite painful, can be satisfactorily performed by having the patient inhale, without a sense of suffocation, less than 2 ounces of ether (2½ ounces as a maximum) during an operation continuing from five to twenty minutes.

This anesthesia is not preferable to nitrous oxide-oxygen, but is a most excellent substitute when gas is not obtainable or too costly.

The method is most practical, simple, and adaptable.

The method is exact. The anesthetist determines at each moment what is the least amount of ether required. The patient is always awake two or three minutes after the operation. Such precision of dosage is possible only with the inhalation method. The presence of the anesthetist is necessary not only to regulate dosage and to guard the safety of the patient, but also in case the surgeon finds it necessary to perform a more radical operation requiring a deeper anesthesia.

Efficiency and safety are the most important considerations in any anesthesia. This anesthesia is as efficient as that produced by nitrous oxide-oxygen alone. It proved to be safe, there having been no untoward effects either immediate or remote even in cases just recovering from double pneumonia and severe attacks of influenza.

Hence this method of analgesia, primarily resorted to in war emergency work, is recommended for surgery in civil life.

Attention is called in the same journal to the value of postoperative analgesia. Dr. Yan Hoosen is quoted as basing her conclusions on between 400 and 500 cases, to each of which was given postoperatively doses of morphine grain 1/32, scopolamine grain 1/200, for from twelve to forty-eight hours, usually midnight of the same day after operation. The scopolamine was in one hospital reduced to 1/400 of a grain because of the active delirium sometimes exhibited by the larger dose. These doses were given every four hours by hypodermic injection—that is, 12, 4 and 8 A.M. and P.M. The reports are most satisfactory.

Postoperative analgesia is most beneficial to patient and nurse alike. To the patient because it shortens convalescence and leaves no dread of future operations. To the nurse because it enables her to care for her patient as she cares for a healthy infant, there being no necessity for giving moral support or enforcing discipline, and the nurse may sit and read or doze for many hours during the day and pass her nights with comparatively little disturbance. In fact, when a patient is not able to afford a

special nurse for more than two or three days, if postoperative analgesia is employed, the patient is advised to have the special nurse the last few days in the hospital, when attractive trays and getting out of bed several times a day add so much to the patient's comfort.

LIQUID PARAFFIN FOR DISINFECTING NEEDLES AND SYRINGES.

WATERHOUSE (*British Medical Journal*, No. 3057, 1919) commends liquid paraffin which boils at 350° C. as a convenient means of disinfecting needles and syringes used for exploring purposes, for withdrawing blood, and for giving intramuscular injections, etc.

A simple method is to heat the upper part of a test-tube three-quarters full of liquid paraffin until currents appear (indicating a temperature of about 150° C.), or rather longer, draw the heated fluid at once into the syringe until it comes into contact with the whole of its interior, and then eject it.

The advantages are the rapidity and simplicity with which complete sterilization can be effected at the bedside and the absence of deleterious effect on the needle, which, if always disinfected and cleansed in this way, never rusts, but remains patent and useful as long as it can be kept sufficiently sharp. The method is particularly useful for needles and syringes for giving intramuscular injections of mercurial cream.

Caution is needed in heating the paraffin, or it may spurt; but this is easily avoided if care be taken to move the test-tube up and down in the flame whilst heating. An experience of this means of disinfection extending over six years has convinced Waterhouse of its utility.

REVIEWS.

THE OXFORD MEDICINE. Edited by Henry A. Christian and Sir James Mackenzie. Volume I, Part V.

We have already noticed the appearance of the earlier parts of Volume I of Oxford Medicine so-called. There are four contributions to the present part: The first, by Dr. Barker of Baltimore, deals with the Rationale of Clinical Diagnosis and covers about 66 pages; the second deals with Tests of Function, by Dr. Henry A. Christian of Boston, and curiously enough covers only 10 pages; the third is on Respiration in Disease, by Francis W. Peabody of Boston, covering 36 pages; while the fourth is on Calorimetric Methods of Study of Disease, by Eugene F. DuBois, which article covers 19 pages.

Naturally the greatest interest on the part of the general practitioner will be connected with the article by Dr. Barker, which, as we have pointed out, is by far the longest in Part V, but which deals with general principles rather than with specific facts. The great majority of physicians, however, will not only be unable, but will consider it a work of supererogation to carry out all the methods of investigation which the author suggests.

ESSENTIALS OF PHARMACY, WITH QUESTIONS AND ANSWERS. By Clyde M. Snow, Ph.G., A.M., C.B. Moseby Company, St. Louis, 1919. Price $5.50.

The author of this book is the Associate Professor of Pharmacy in the University of Illinois School of Pharmacy, and the subjects presented are in the order originally followed by the late Dr. Hallberg in his lectures. The text has for its foundation the requirements of the U. S. Pharmacopœia and National Formulary, and the

author thinks that it should not be used by the student except hand-in-hand with these volumes.

The volume, which covers more than 700 pages, is devoted, as its subtitle indicates, to the subject of pharmacy in question and answer form. It deals also with things related to pharmacy in the sense of specific gravity, the metric system, heat, sublimation, and a number of other subjects of the same nature.

Such books have a very distinct value to the student if they are accurate and if, as the author says, no attempt is made to make them the sole text-book; in other words, such a volume is to one of the regular text-books what a quiz master is to a lecturer on any given topic, formulating questions and answers in such a way as to aid the student in getting clear conceptions of the problems which are before him. From this point of view the book can be cordially recommended.

THE WOMAN OF FORTY. By Edith B. Lowry, M.D. Forbes & Company, Chicago, Ill., 1919. Price $1.25.

As we have pointed out in these pages, it is extremely difficult for any one to deal with medical matters in such a way as to present them properly to the laity. The authoress of this small volume says that it is her intention to convey two messages: (1) To impress upon the woman of forty the necessity of placing her body in a perfect condition to avoid the ills so common to the majority; and (2) to present to her the need of a definite plan for future occupation.

There are ten chapters, making up a total of 195 pages, dealing with the appearance of the woman at forty, exercise and recreation, change of life, her general health, her surroundings and environment, her community work and responsibility, and other topics along similar lines.

The book is not definitely a medical one. Perhaps two excerpts would give an idea of its trend. On page 21, it is stated that wrinkles may come when one is sleeping if care is not given to compose the face by thinking happy thoughts at bedtime; and again, on page 49, the woman is warned in walking to be careful of her posture so that she will not advertise to the neighbors all her habits, for the author thinks that the walk is as characteristic of a woman as is the style of her shoes. The timid woman "who makes a doormat of herself," the authoress states, has a hesitating tread.

Manifestly the book is not intended for medical men, but possibly some medical men will be glad to hand it to their patients as a guide.

RULES FOR RECOVERY FROM PULMONARY TUBERCULOSIS. A Layman's Handbook of Treatment. By Lawrason Brown, M.D. Third edition, thoroughly revised. Lea & Febiger, Philadelphia, 1919. Price $1.50.

As the author says, the call for a third edition of this little book is an indication that it has proved itself useful to patients. Its object is well described in its title. The manner of living is directed, dietetic directions are given, and something is said in regard to the use of alcohol and tobacco. The author is not friendly to the first of these. He admits that little is known of the influence of tobacco upon a tuberculous lung, although smoky atmospheres are held to be injurious. His conclusion is that moderate smoking for a healthy adult seems to exert little harm, but that the inhalation of smoke by irritating the throat may induce trouble. Taking it all in all he thinks that the tuberculous patient is better without tobacco.

FOOD FOR THE SICK AND WELL. By Margaret P. Thompson, R.N. Price $1. The World Book Company, Yonkers-on-Hudson, New York, 1920.

The idea of this little book of 82 pages, including the index, is to tell how to prepare as well as how to select food for the sick; in other words, it is a book of recipes the result of years of training in charge of a dietetic kitchen. There are recipes for breakfast foods, breads, eggs, meats, soups, fish, and the various forms of starchy foods, as well as jellies, canned fruits, and cheese dishes. The latter part of the book is de-

voted to bathing, sponges, packs, salt rubs, poultices, mustard plasters, etc. It is a useful little volume which will serve all trained nurses well, and which will relieve a busy practitioner from much trouble if he will turn to it when appealed to for some directions as to how foods for the sick should be prepared.

MODERN SURGERY: GENERAL AND OPERATIVE. By J. Chalmers DaCosta, M.D. Eighth Edition, Revised, Enlarged, and Reset. Illustrated. Philadelphia and London: W. B. Saunders Company, 1919. Cloth, $8 net.

This eighth edition of DaCosta's Surgery, with entire appropriateness termed modern, has been revised, enlarged, and reset, with 1177 illustrations, some of them being in colors.

It is almost cyclopedic in scope, whilst it retains much of the brevity and directness of teaching which the student and practitioner expect in a text-book.

The distinguished author's scholarly ability, so happily tempered by clarity of vision, sound common sense, and skill in the use of forceful English, has put the indelible mark of his strong personality upon his book. He pictures vividly and completely the science of surgery, and embellishes the practical part of his work by an erudition which is both gratifying to the learned and helpful and stimulating to the man who works mainly with his hands.

In general arrangement this edition follows the scheme which has proven so acceptable in its predecessors. In each section the real progress of surgery is judiciously considered and the advances of permanent value are set forth.

To one of DaCosta's wide familiarity with current literature the temptation to be led afield by those autohypnotists who revive and clothe in new verbiage discarded fashions must have been at times great. There is no evidence of yielding on any single point.

This is a book to be commended without reservation, useful in one's daily work and almost equally serviceable to one who in his writings or studies would be reminded of those worthies who have most largely contributed to the progress of surgery.

NOTES AND QUERIES.

THE RECURRENCE OF INFLUENZA.

In November last Dr. John Brownlee predicted in the London *Lancet* that there would be a recurrence in January or February of this year of the influenza epidemic. He based his prediction on a study of influenza epidemics of the past. He found they occurred or recurred at intervals of 33 weeks, providing the thirty-third week did not fall between June and December, in which case the recurrence might be expected at the end of 66 weeks or 99 weeks. He regarded the fall epidemic of 1918 as an exception to the rule. The epidemic that has been raging in the United States and now is subsiding came exactly 66 weeks after the 1918 visitation.

The authorities at Washington say the periodicity suggests that we may be dealing with infecting organisms which not only have the power of reproducing themselves in a virulent form continuously for a long period if susceptible persons are exposed, but have the power of developing in cycles of 33 or 66 weeks.

W. LeMar Talbot, president of the Fidelity Mutual Life Insurance Company, of Philadelphia, had one of his actuaries go over the influenza and pneumonia death record of the United States in a number of selected cities to check up Doctor Brownlee's statement. The result justifies the eminent British doctor's theory. The actuary went further. He went back to the "grip" records of the period from 1890 to 1893 inclusive. They show those epidemics occurred in cycles of 33 weeks, being severe when the 33-week periods came in winter and light when they occurred in the summer months.

The official figures of the influenza epidemics show that the 1918 attack began in the third week in September, when the number of deaths was 612. Then the mortality rose rapidly for five weeks. The totals for those five weeks were 1764, 4759, 11,420, 19,939, and 20,846, respectively. Then they began to decline. The peak was reached in the week of October 26. From that time the 33-week period would have brought a recurrence of the epidemic in the middle of June, 1919, but as June is a summer month the influenza germ was attenuated and the public was spared. From mid-June, 1919, to the last of January, 1920, was exactly 33 weeks, or 66 weeks from the plague of 1918. In the last week of January of this year the death record from influenza was higher, with four exceptions, than at any time immediately after the epidemic of 1918 began to wane.

But the death chart of la grippe epidemics in the four years, 1890-1893 inclusive, is even better proof of the correctness of Doctor Brownlee's idea. This shows that, beginning with a heavy death toll in February, 1890, 33 weeks later brought the record to August. That being a hot month, the deaths were few. Thirty-three weeks later brought the record to April, 1891. The deaths were not so high as in February of the year before, but were considerable. The next 33 weeks carried the record to November, 1891. There were many deaths then, the weather being wintry. June, 1892, was the next 33 weeks' run. June had a low record of deaths. The next period carried the chart to February, 1893, and there was a death record second only to that of February, 1890.

There you have as absolute evidence as it is possible to furnish that every 33 weeks brings a recurrence of la grippe or influenza, and that when the thirty-third week comes in summer the public is spared, and when it comes in winter the Grim Reaper is busy. The record also indicates that the epidemic develops much faster than it subsides.

When are we going to have another attack? You can predict it as well as any person on earth and as accurately. Begin with the dread epidemic of October, 1918, and see what the 33 weeks bring forth.

Here is the showing:

Period.

0 October, 1918—Serious epidemic, cold weather.
33 May, 1919—Mild attack, warm weather.
66 January, 1920—Severe attack, bad weather.

Now as to the future:

99 September, 1920—Warm; should be light attack.
132 April, 1921—Spring, mild attack.
165 December, 1921—Winter; serious.
198 August, 1922—Summer; nothing to fear.

Apparently we are safe from influenza in virulent form until December of 1921—that is, December of next year.

But the danger will not be so great, or it would appear that it will not be so great, then, for there are signs that the germ is not so strong as it was and that it gradually is getting weaker and more and more attenuated. Possibly, too, the physicians, by that time, will discover some way of inoculating the people against the horrible scourge.—*Philadelphia Ledger*, Feb. 12, 1920.